



## Hardware User Manual

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*EA3-USER-M*



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# EA3 Series Panels

## HARDWARE USER MANUAL



Please include the Manual Number and the Manual Issue, both shown below, when communicating with Technical Support regarding this publication.

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1st Edition Rev. A	10/14	Removed references to D4-1000CBL
1st Edition Rev. B	01/15	Revised PLC compatibility tables, minor revisions.
2nd Edition	10/15	Added EA3-T6CL, minor revisions
2nd Edition Rev. A	04/16	Added EA-ECOM
2nd Edition Rev. B	06/17	Added EA3-S3ML and EA3-T4CL
2nd Edition Rev. C	11/17	Added EA3-S3ML-RN and EA3-S3ML-R
2nd Edition Rev. D	01/18	Revised power and fuse requirements
2nd Edition Rev. E	02/18	Added EA-ECOM PLC Drivers
2nd Edition Rev. F	06/18	Revised communication port description
2nd Edition Rev. G	08/18	Corrected DH485-CBL description
2nd Edition Rev. H	11/18	Revised communication cable charts
2nd Edition Rev. J	09/19	Revised communication cable diagrams
2nd Edition Rev. K	09/20	Added Ethernet communications power note
2nd Edition Rev. L	03/21	Revised Modbus PLC protocol
2nd Edition Rev. M	04/21	Added differential power supply warning
2nd Edition Rev. N	07/21	Removed references to EA-MG-SP1 and EA-MG-P1
2nd Edition Rev. P	08/21	Revised cable photos







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# GETTING STARTED

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# CHAPTER 1

## In this Chapter...

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## Introduction

### The Purpose of this Manual

Thank you for purchasing from our **C-more®** Micro family of products. This manual describes **AutomationDirect.com's C-more** Micro panels, specifications, included components and available accessories and provides you with important information for installation, connectivity and setup. The manual shows you how to install, wire and use the products. It also helps you understand how to interface the panels to other devices in a control system.

This user manual contains important information for personnel who will install the panels and accessories, and for the personnel who will be programming the panel. If you understand control systems making use of operating interfaces such as the **C-more** Micro panels, our user manuals will provide all the information you need to get, and keep, your system up and running.

### Supplemental Manuals

If you are familiar with industrial control type devices, you may be able to get up and running with just the aid of the Quick Start Guide that is included with each panel. You may also refer to the online help that is available in the **C-more** Micro programming software.

### Technical Support

We strive to make our manuals the best in the industry. We rely on your feedback to let us know if we are reaching our goal. If you cannot find the solution to your particular application, or, if for any reason you need technical assistance, please call us at:

**770-844-4200**

Our technical support group will work with you to answer your questions. They are available Monday through Friday from 9:00 A.M. to 6:00 P.M. Eastern Time. We also encourage you to visit our web site where you can find technical and non-technical information about our products and our company.

**<http://c-moremicro.automationdirect.com>**



## Conventions Used

1



When you see the “notepad” icon in the left-hand margin, the paragraph to its immediate right will be a special note. The word **NOTE**: in boldface will mark the beginning of the text.

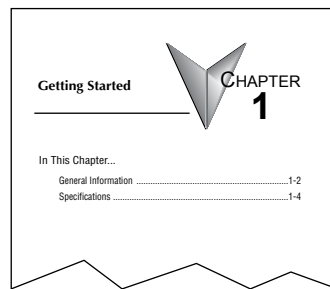


When you see the “exclamation mark” icon in the left-hand margin, the paragraph to its immediate right will be a warning. This information could prevent injury, loss of property, or even death (in extreme cases). The words **Warning**: or **Caution**: in boldface will mark the beginning of the text.

### Key Topics for Each Chapter

The beginning of each chapter will list the key topics that can be found in that chapter.

- TFT color display
- LED backlight
- Selectable Portrait or Landscape orientation
- Requires 12 - 24 VDC Class 2 power supply
- USB Type B programming port
- Built in 15-pin serial communications port (RS-232/422/485)
- Built in RJ12 port
- Five or Seven user-defined function keys, each with a user-programmable red LED
- Optional replaceable clear screen overlay
- Built in Alarm Control setup that activates beep, backlight flash, customized alarm banner, and red LED blinking
- Up to 999 screens, limited only by memory usage
- 0 to 50 °C (32 to 122 °F) operating temperature range
- UL, cUL & CE agency approvals (see Panel Specifications and Agency Approvals sections for details)
- 2-year warranty from date of purchase



## 1

## Agency Approvals

Certifications					
Name	UL / cUL	UL508	UL61010	CE	ISO-9000
EA3-S3ML-RN, EA3-S3ML-R, EA3-S3ML, EA3-T4CL	E157382	N/A	E157382	Yes	Yes
EA3-T6CL, EA3-T8CL, EA3-T10CL		E157382	N/A		



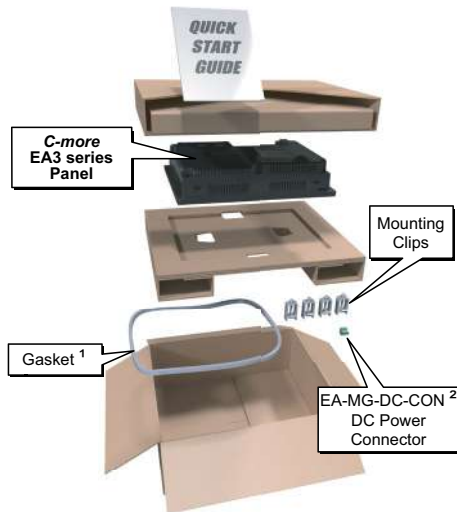
## Quick Start Steps

**1**

### Step 1 – Unpack and Inspect

a.) Unpack the **C-more** Micro panel from its shipping carton. Included in the carton are the following:

- **C-more** Color Micro panel
- DC power connector
- mounting clips
- gasket
- Quick Start Guide



- b.) Unpack any accessories that have been ordered, such as: programming cable, PLC communications cable, etc.
- c.) Inspect all equipment for completeness. If anything is missing or damaged, immediately call the AutomationDirect® returns department @ 1-800-633-0405.

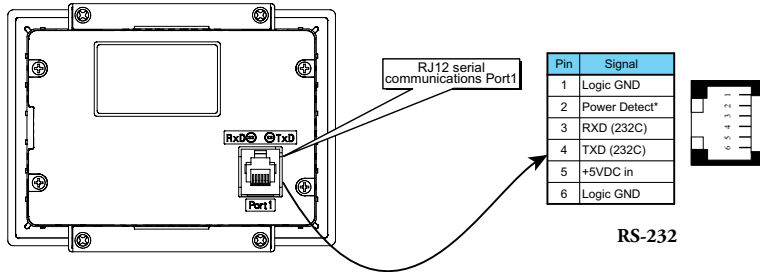
1. Not included with EA3-S3ML-RN

2. Not included with EA3-S3ML-RN and EA3-S3ML-R

## Step 2 – Become Familiar with Available Communication Ports

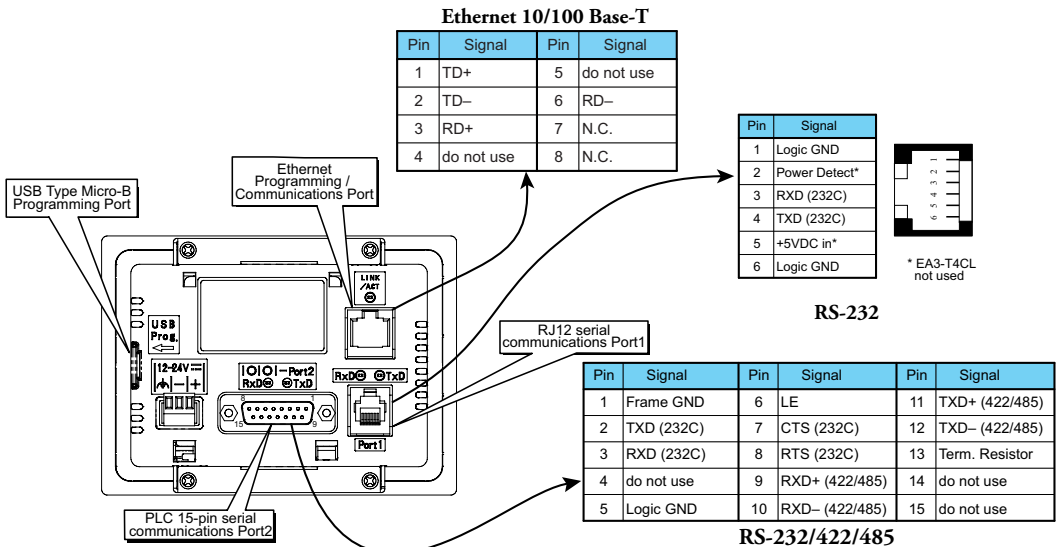
### EA3-S3ML-RN and EA3-S3ML-R

EA3-S3ML-RN and EA3-S3ML-R **C-more** Micro panels include a built-in RJ12 RS-232 serial communications port designated as Port 1. The EA-MG-PGM-CBL programming cable assembly connects to this port for programming the **C-more** Micro with a PC. In operation, the DV-1000CBL cable is used to connect to any AutomationDirect PLC with an RJ12 port. These panels are powered through Port1 when using either of these cables.

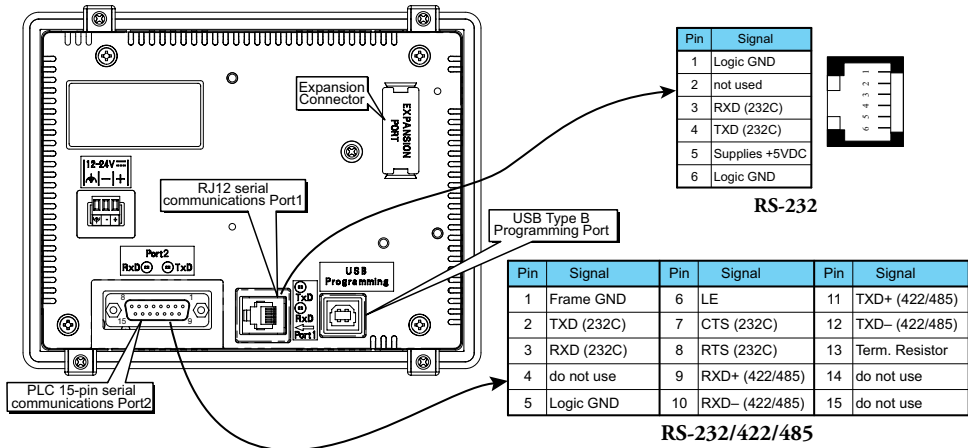


### EA3-S3ML and EA3-T4CL

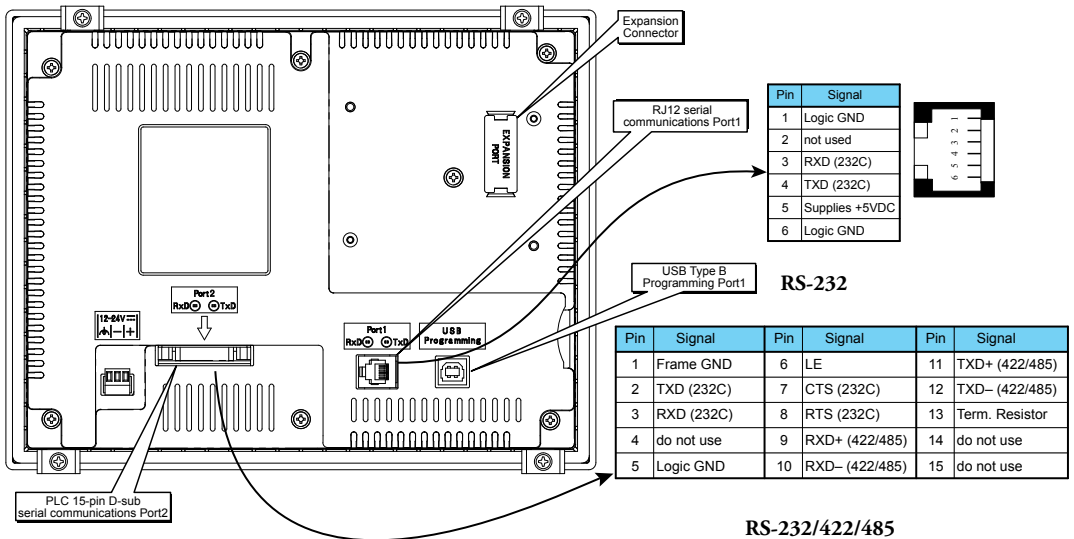
EA3-S3ML, EA3-T4CL, EA3-T6CL, EA3-T8CL and EA3-T10CL **C-more** Micro panels include a built-in USB Type B port used to communicate with a PC during project development. There is a 15-pin RS-232/RS-422/RS-485 port and an RJ12 RS-232 port for communications to a PLC.



### EA3-T6CL



### EA3-T8CL and EA3-T10CL



**NOTE:** See Chapter 2: Specifications and Chapter 6: PLC Communications for additional details on the available communication ports, protocols and cables.

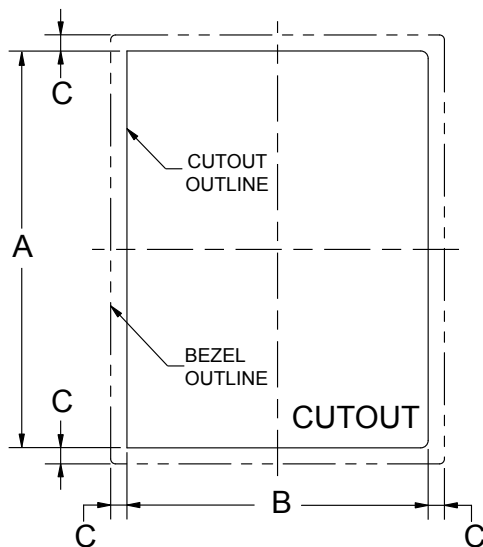
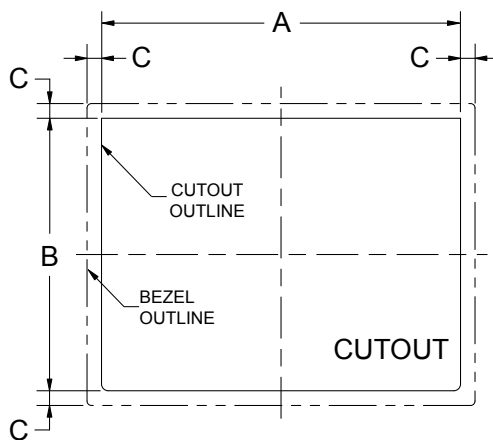


**NOTE:** The panel has a built-in RJ12 serial communications port (Port1 - RS-232) and a built-in 15-pin serial communications port (Port2 - RS-232/422/485). Only one of the ports can be used with a connected PLC.

**Step 3 – Install *C-more* Micro Panel**

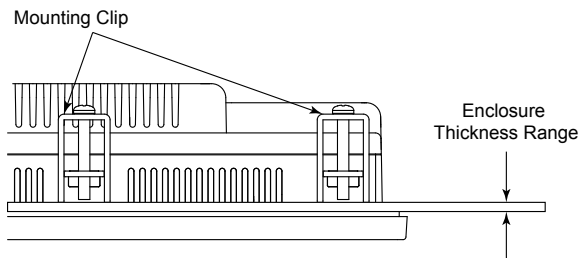
The *C-more* Micro panel can be mounted through a cutout in an enclosure by using the dimensions that follow.

See **Chapter 2: Specifications** for additional product dimensions.

**Landscape Mode (Horizontal)****Portrait Mode (Vertical)**

Cutout Dimensions inches [mm]						
	EA3-S3ML-RN	EA3-S3ML-R	EA3-S3ML	EA3-T4CL	EA3-T6CL	EA3-T8CL
A	4.02 [102.0]	4.02 [102.0]	4.02 [102.0]	4.02 [102.0]	6.34 [161.0]	9.25 [235.0]
B	2.76 [70.0]	2.76 [70.0]	2.76 [70.0]	2.76 [70.0]	4.81 [122.2]	7.07 [179.6]
C	0.24 [6.0]	0.24 [6.0]	0.24 [6.0]	0.36 [9.2]	0.26 [6.6]	0.31 [7.9]

The enclosure mounting thickness range for the panels is 0.04"–0.2" [1–5 mm].



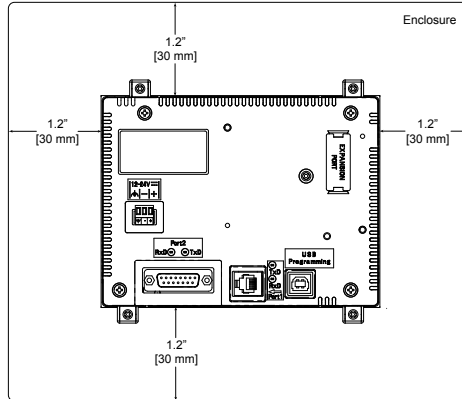
Mounting Screw Tightening Torque	
EA3-S3ML-RN	21 - 28 oz-in (0.15 - 0.20 N·m)
EA3-S3ML-R	
EA3-S3ML	
EA3-T4CL	
EA3-T6CL	63 - 77 oz-in (0.45 - 0.55 N·m)
EA3-T8CL	
EA3-T10CL	

## Enclosure Clearances

EA3-S3ML-RN, EA3-S3ML-R, EA3-S3ML, EA3-T4CL and EA3-T6CL

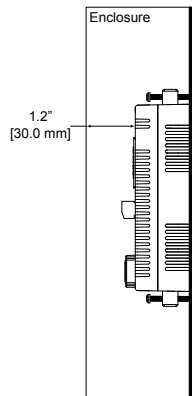
In all installations, 1.2" [30.0 mm] minimum clearance is required inside an enclosure for proper ventilation of **C-more** Micro panels.

1



**Rear View**

A 1.2" [30.0 mm] minimum clearance is required at the rear of a panel for proper ventilation of **C-more** Micro panels.

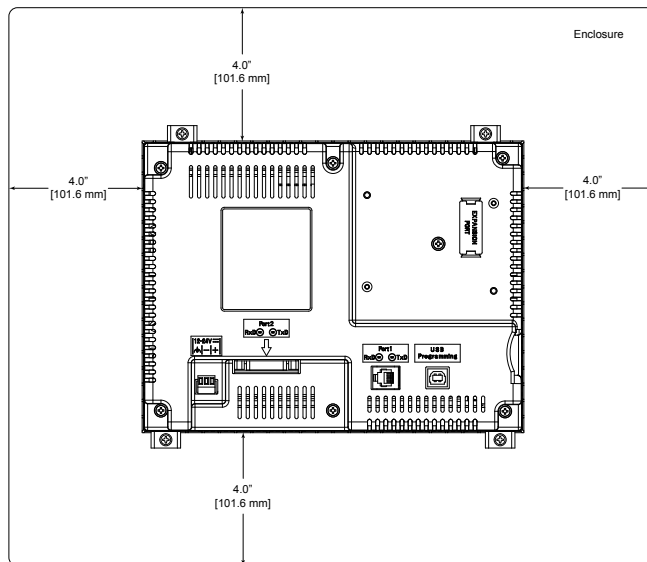


**Side View**

## Enclosure Clearances (cont'd)

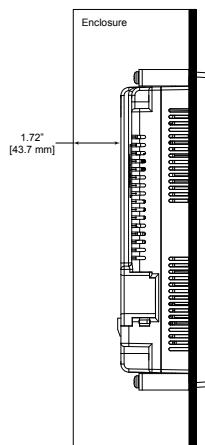
## EA3-T8CL and EA3-T10CL

In all installations, 4.0" [101.6 mm] minimum clearance is required inside an enclosure for proper ventilation of 8-inch and 10-inch **C-more** Micro panels.



## Rear View

1.72" [43.7 mm] minimum clearance is required at the rear of a panel for proper ventilation of 8-inch and 10-inch **C-more** Micro panels.



## Side View



## Step 4 – Install the Programming Software and Develop a Project

**C-more** Micro Programming Software is available for free download at  
<http://support.automationdirect.com/products/cmoremicro.html>

1

Part Number	Panel Software / Firmware Version Required
EA3-S3ML-RN	4.30 or later
EA3-S3ML-R	4.30 or later
EA3-S3ML	4.20 or later
EA3-T4CL	4.20 or later
EA3-T6CL	3.6 or later
EA3-T8CL	3.5 or later
EA3-T10CL	3.5 or later

Following are the system requirements for running **C-more** Micro Programming Software, EA-MG-PGMSW, on a PC:

- Operating System - Windows® 7 (32 and 64 bit), Windows 8 (32 and 64 bit); Windows 8.1 (32 and 64 bit), Windows 10
- Minimum 150 MB free hard-disk space
- CD-ROM or DVD drive for installing software from the CD, or internet access to download free programming software
- USB port or Ethernet port if using optional EA-ECOM for project transfer from software to touch panel

Insert the **C-more** Micro Programming Software CD-ROM into the PC's CD-ROM drive or download the programming software from [www.automationdirect.com](http://www.automationdirect.com) and follow the instructions. If you need assistance during the software installation, please refer to the supplied Software Installation Guide or call the AutomationDirect Technical Support team at 770-844-4200.



**NOTE:** The USB Type B programming port has an internal USB to serial converter. When the device is properly installed and the USB programming cable connects the panel to the PC, the port will be identified as a serial communications port with an assigned COM port number.

## Step 5 – Connect *C-more* Micro to Computer

1



**NOTE:** Install *C-more* Micro Programming software before connecting the panel to the PC to ensure that the panel drivers install correctly.

### EA3-S3ML-RN and EA3-S3ML-R

Use an EA-MG-PGM-CBL, USB to RS-232 Programming Cable Assembly, from an USB port type A on the project development PC, through the supplied converter, to the RJ12 RS-232 programming/PLC serial communications port on the *C-more* Micro-Graphic panel as shown below.



**EA3-S3ML and EA3-T4CL**

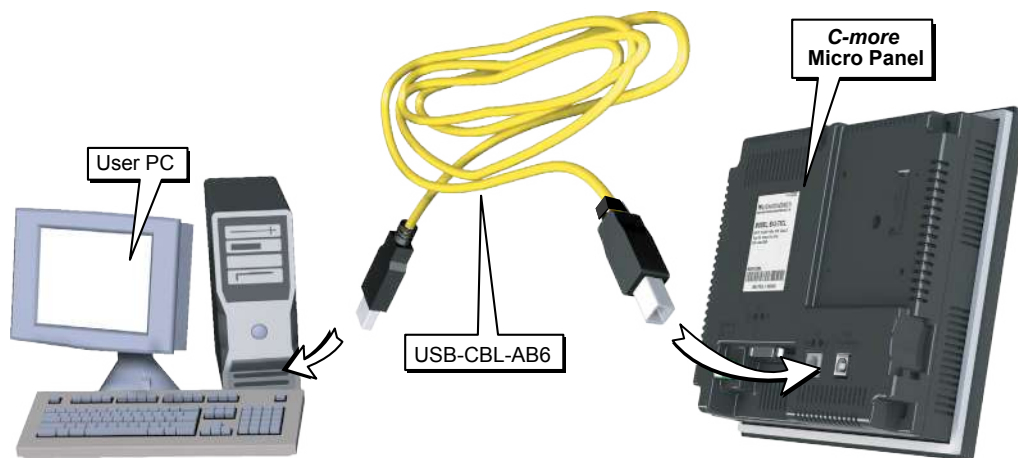
**Ethernet:** Connect the PC RJ45 Ethernet port to the **C-more** Micro panels built-in RJ45 Ethernet port.

**USB Type B port:** Connect the PC USB Type A port to the panels USB type micro B port using a standard USB A to micro B USB cable. Maximum micro USB cable length should not exceed six feet. See part number USB-CBL-AMICB6 on the AutomationDirect web store.

**EA3-T6CL, EA3-T8CL and EA3-T10CL**

**Ethernet (Optional):** Purchase the EA-ECOM Ethernet Option Module from AutomationDirect to connect the PC to the C-more Micro Panels.

**USB Type A port:** Connect the PC USB Type A port to the panels USB Type B port using standard USB Type A to Type B cables. See part number USB-CBL-AB6 on the AutomationDirect web store.



**NOTE:** EA3-S3ML and EA3-T4CL are programmable via the built-in Ethernet port.

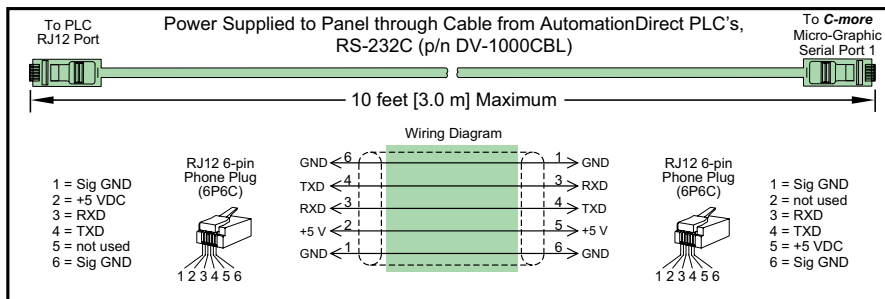


**NOTE:** Adding the optional EA-ECOM module to the EA3 6, 8 and 10-inch models allows programming via an Ethernet connection with Cat5e cable.

## Step 6 – Provide Power to the *C-more* Micro Panel

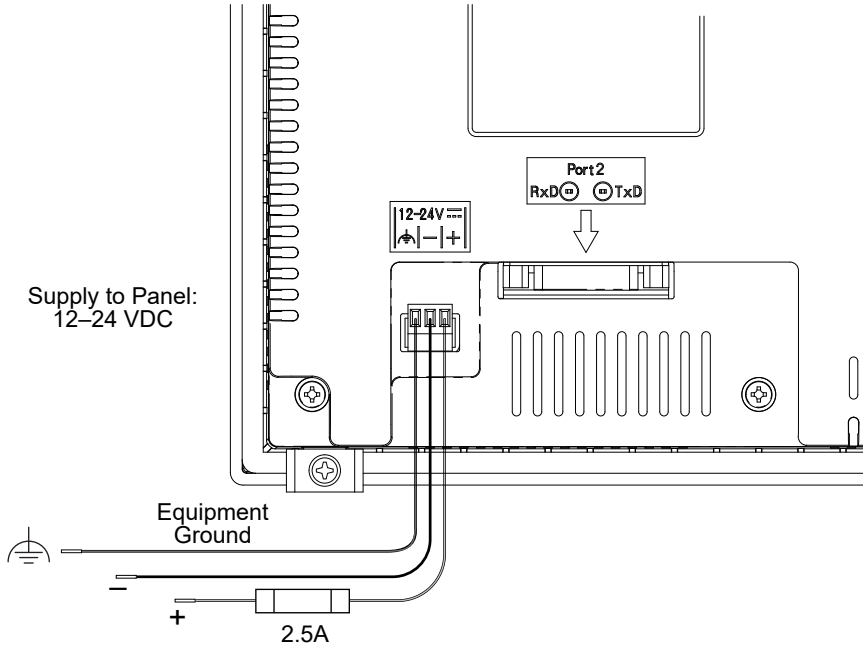
### EA3-S3ML-RN and EA3-S3ML-R

- EA3-S3ML-RN and EA3-S3ML-R *C-more* Micro panels are powered during programming from the PC through the USB to RS-232 Programming Cable Assembly, EA-MG-PGM-CBL.
- During operation, EA3-S3ML-RN and EA3-S3ML-R *C-more* Micro panels can be powered from most AutomationDirect PLC's RJ12 serial communications port by using a DV-1000CBL communications cable, or a DV-1000CBL communications cable with a FA-15HD 15-pin HD DSub/RJ12 Adapter connected to a *Direct*LOGIC PLC's 15-pin HD communications port (DL06, D2-250-1 & D2-260) PLCs. See **Chapter 6: PLC Communications** for additional details.



## EA3-S3ML, EA3-T4CL, EA3-T6CL, EA3-T8CL and EA3-T10CL

EA3-S3ML, EA3-T4CL, EA3-T6CL, EA3-T8CL and EA3-T10CL panels are powered by a 12-24 VDC class 2 power source .



Required Wire Specification	
Supported temperature	Over 60 °C
Wire Material	Copper
Wire Size	16 - 22 AWG

Tightening Torque	
Power supply wire connection	1.7 lb-in (0.2 Nm)

Recommended Power Supply		
Part Number	Power	Power Supply
EA3-S3ML-RN	N/A	N/A
EA3-S3ML-R		
EA3-S3ML	3W	PSL-24-010
EA3-T4CL	4W	
EA3-T6CL	7.5 W	
EA3-T8CL	8W	
EA3-T10CL	10W	PSC-24-015



**WARNING:** Using a differential power supply and connection the USB to a PC can damage both the panel and the PC.

**Step 7 – Accessing the C-more Micro Panel Setup Screens**

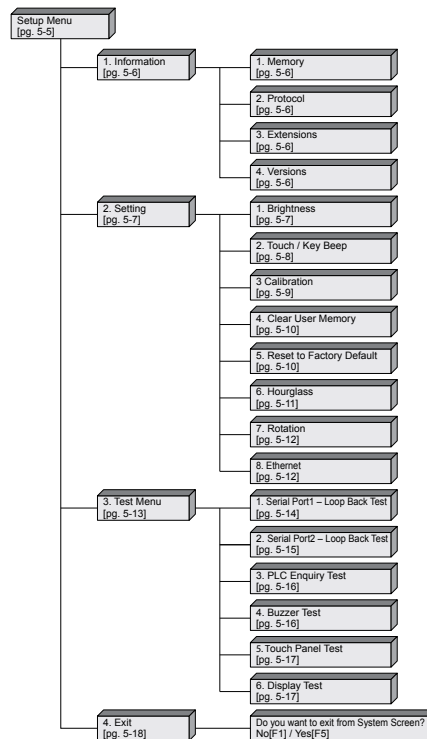
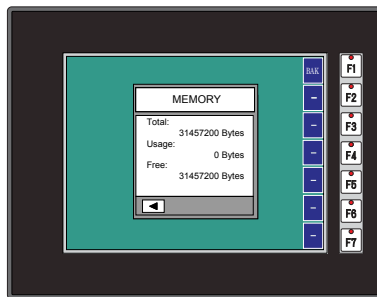
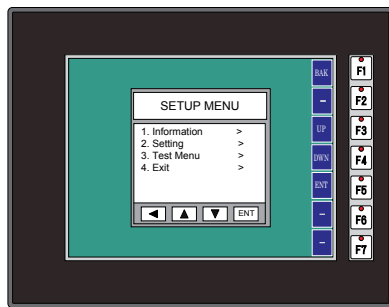
To access the **Setup Menu** of the panel's setup screens on models with function keys, press the the BAK [F1] and ENT [F5] function keys simultaneously for three (3) seconds. For EA3-T4CL, touch the upper left corner of the screen for three seconds.



From the **Setup Menu**, information about the panel can be obtained, settings can be adjusted, and panel functions can be tested.



**NOTE:** See **Chapter 5: System Setup Screens** for details on using the setup screen settings and functions.



## Step 8 – Choose *C-more* Micro Panel to PLC Protocol & Cables

### Available PLC Protocols

1

PLC Drivers		
Serial - port1 or port2	Serial - port2 only	Ethernet*
AutomationDirect Productivity Series	Allen-Bradley DF1 Half Duplex	AutomationDirect Productivity Series Ethernet
	Allen-Bradley DF1 Full Duplex	
AutomationDirect Do-more / BRX**	Allen-Bradley PLC5 DF1	AutomationDirect Do-more / BRX Ethernet
AutomationDirect CLICK	Allen-Bradley DH485	AutomationDirect CLICK Ethernet
AutomationDirect K-sequence	GE SNPX (90/30, 90/70, Micro 90, VersaMax Micro)	AutomationDirect ECOM Ethernet
AutomationDirect DirectNET	Mitsubishi FX	Modbus TCP/IP
AutomationDirect Modbus (master only)	Mitsubishi Q & QnA	Allen-Bradley EtherNet / IP Client (MicroLogix 1100/1400)
Modicon Modbus RTU (master only)	Omron Host Link (C200 Adapter, C500)	
Entivity Modbus RTU (master only)	Omron FINS Serial (CJ1, CS1)	Allen-Bradley EtherNet / IP Client (SLC5 / 05 / ENI Adapter)
	Siemens PPI (S7-200 CPU)	
	AutomationDirect SOLO Temperature Controller	
	AutomationDirect GS Drives	
* Ethernet port is built in on EA3-S3ML and EA3-T4CL. Add an Ethernet port to EA3-T6CL, EA3-T8CL and EA3-T10CL with an optional EA-ECOM module. Ethernet communications require external power supply.		
** BX-P-SER2-RJ12 is required		

### Available Purchased Cables

Cable Description	Cable Part No.
<b>Cables used with RJ12 RS-232 serial Port1</b>	
AutomationDirect Productivity Series, Do-more / BRX*, CLICK, <b>Direct</b> LOGIC PLC RJ-12 port, DL05, DL06, DL105, DL205, D3-350, D4-450, D4-454 & H2-WinPLC (RS-232C). 3.66m (12ft) cable length	DV-1000CBL
<b>Direct</b> LOGIC (VGA Style) 15-pin port, DL06, D2-250 (250-1), D2-260 (RS-232C). Use with D0-CBL cable.	FA-15HD
<b>Direct</b> LOGIC PLC 15-pin D-sub port, DL405 (RS-232C). Use with D0-CBL cable.	FA-CABKIT
<b>Direct</b> LOGIC PLC RJ-11 port, D3-340 (RS-232C) 2m (6.56 ft) cable length	OP-3CBL-1
* BX-P-SER2-RJ12 is required	

Available Purchased Cables continued on the next page

## Available Purchased Cables (cont'd)

1

Cable Description	Cable Part No.
<b>Cables used with 15-pin RS-232/422/485 serial Port2</b>	
AutomationDirect Productivity Series, Do-more / BRX*, CLICK, <i>Direct</i> LOGIC PLC RJ-12 port, DL05, DL06, DL105, DL205, D3-350, D4-450, D4-454 & H2-WinPLC (RS-232C) 3m (9.8 ft) cable length	EA-2CBL
<i>Direct</i> LOGIC (VGA Style) 15-pin port, DL06, D2-250 (250-1), D2-260 (RS-232C) 3m (9.8 ft) cable length	EA-2CBL-1
<i>Direct</i> LOGIC PLC RJ-11 port, D3-340 (RS-232C) 3m (9.8 ft) cable length	EA-3CBL
<i>Direct</i> LOGIC DL405 PLC 15-pin D-sub port, DL405 (RS-232C) 3m (9.8 ft) cable length	EA-4CBL-1
<i>Direct</i> LOGIC PLC 25-pin D-sub port, DL405, D3-350, DL305 DCU and all DCM's (RS-232C) 3m (9.8 ft) cable length	EA-4CBL-2
Allen-Bradley MicroLogix 1000, 1100, 1200, 1400 & 1500 (RS-232C) 3m (9.8 ft) cable length	EA-MLOGIX-CBL
Allen-Bradley SLC 5-03/04/05, ControlLogix, CompactLogix, FlexLogix DF1 port (RS-232C) 3m (9.8 ft) cable length	EA-SLC-232-CBL
Allen-Bradley PLC-5 DF1 port (RS-232C) 3m (9.8 ft) cable length	EA-PLC5-232-CBL
Allen-Bradley SLC 5-01/02/03 DH485 port 3m (9.8 ft) cable length	EA-DH485-CBL
GE 90/30, 90/70, Micro 90, Versamax Micro (Port2) 15-pin D-sub port (RS-422A) 3m (9.8 ft) cable length	EA-90-30-CBL
MITSUBISHI FX Series 25-pin port (RS-422A) 3m (9.8 ft) cable length	EA-MITSU-CBL
MITSUBISHI FX Series 8-pin mini-DIN (RS-422A) 3m (9.8 ft) cable length	EA-MITSU-CBL-1
OMRON Host Link (C200 Adapter, C500) (RS-232C) 3m (9.8 ft) cable length	EA-OMRON-CBL
* BX-P-SER2-RJ12 is required	



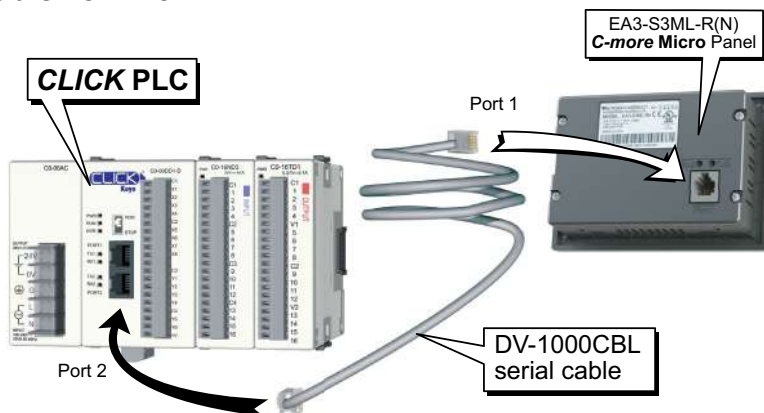
**NOTE:** See **Chapter 6: PLC Communications** for a detailed chart of PLC compatibility & cable connections. Chapter 6 includes wiring diagrams for end user construction of certain cables.



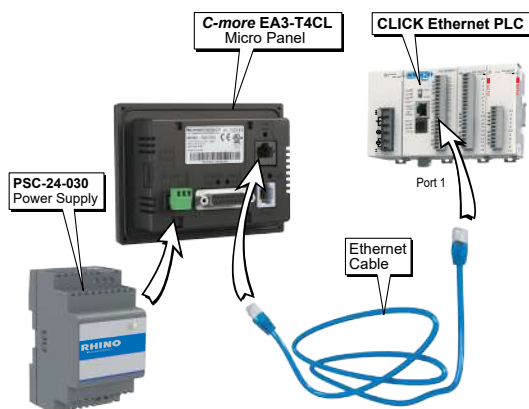
## Step 9 – Connect *C-more* Micro Panel to PLC

Connect the serial communications cable between the *C-more* Micro panel and the PLC. The panel can be connected to the PLC via the panel's built-in RJ12 serial communications port (RS-232) or depending on model, the 15-pin serial communications port with either RS-232, RS-422 or RS-485 communications. Adding the optional EA-ECOM module to the EA3 6,8 and 10-inch models allows communications via an Ethernet connection. An Ethernet port is built-in to the EA3-S3ML and EA3-T4CL.

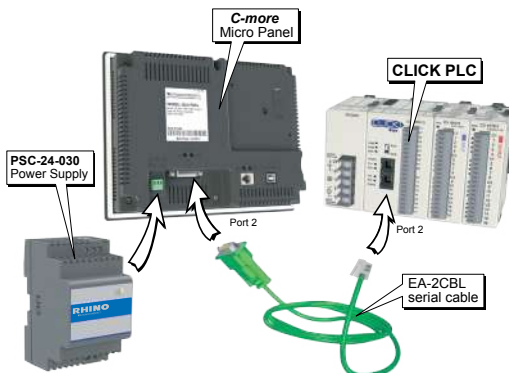
### Example of panel's Port 1 connected to a CLICK PLC



### Example of EA3-T4CL Ethernet Port connected to a CLICK PLC with Ethernet

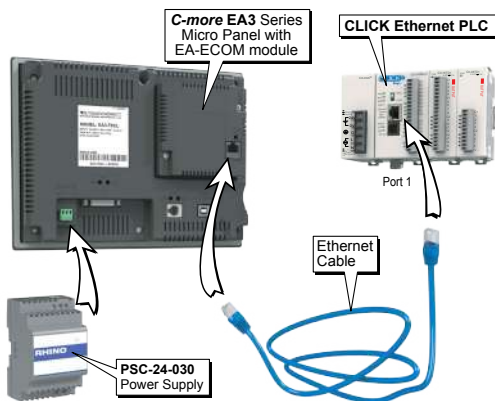
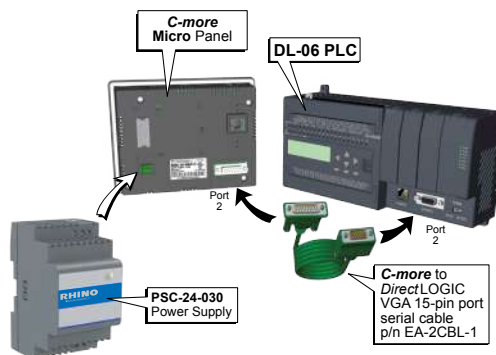


1



**Example of panel's Port 2 connected to a CLICK PLC**

**Example of panel's Port 2 connected to a DL06 PLC**



**Example of optional EA-ECOM module connected to a CLICK PLC with Ethernet.**

# SPECIFICATIONS

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# CHAPTER 2

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## Available Models

The **C-more** Micro panels expand the next generation of HMI panels brought to you by **AutomationDirect**. They have been designed to display and interchange graphical data from a PLC by viewing, using the function keys, or touching the screen. See **Chapter 3: Accessories** for details on the available accessories for the **C-more** Micro panels.

C-more EA3 Series Micro Panels		
Part Number		Description
EA3-S3ML-RN		<b>C-more</b> Micro EA3 series HMI, 3in monochrome STN LCD, 128 x 64 pixel, LED backlight, supports (1) serial port.
EA3-S3ML-R		<b>C-more</b> Micro EA3 series touch screen HMI, 3in monochrome STN LCD, 128 x 64 pixel, LED backlight, supports (1) serial port.
EA3-S3ML		<b>C-more</b> Micro EA3 series touch screen HMI, 3in monochrome STN LCD, 128 x 64, supports (2) serial, (1) Ethernet and (1) USB ports.
EA3-T4CL		<b>C-more</b> Micro EA3 series touch screen HMI, 4in color TFT LCD, widescreen, 480 x 272, WQVGA, supports (2) serial, (1) Ethernet and (1) USB port.
EA3-T6CL		<b>C-more</b> Micro EA3 series touch screen HMI, 6in color TFT LCD, 320 x 240, QVGA, supports (2) serial and (1) USB port.
EA3-T8CL		<b>C-more</b> Micro EA3 series touch screen HMI, 8in color TFT LCD, 800 x 600, SVGA, supports (2) serial and (1) USB port.
EA3-T10CL		<b>C-more</b> Micro EA3 series touch screen HMI, 10in color TFT LCD, 800 x 600, SVGA, supports (2) serial and (1) USB port.

## EA3-S3ML-RN and EA3-S3ML-R Specifications

Specifications		
Part Number:	EA3-S3ML-RN	EA3-S3ML-R
Description:	128 x 64 pixel LCD display Five user defined keypad function buttons with five user defined LED indicators	
Display:		
• Type	3.1" STN Monochrome with LED Backlight	
• Resolution	128 (W) x 64 (H) pixel	
• Color	2 colors (normal / inverse)	
• Display Brightness (Reference)	W: Typ. 150 nit G: Typ. 150 nit R: Typ. 40 nit	
• Viewing Area Size	2.78" (W) x 1.53" (H) 70.7 mm x 38.8 mm	
• Active Area Size	2.62" (W) x 1.31" (H) mm 66.52 mm x 33.24 mm	
• Contrast / Brightness	Adjusted from the panel's built-in configuration setup menu	
• Viewing Angle (Landscape Mode)	3, 6, 9 o'clock axis → 45 degrees 12 o'clock axis → 30 degrees	
Backlight:		
• Type	LED	
• Color	White, Red, Green (12 colors)	
• User Replaceable	No	
Touch Screen:		
•Type	N/A	Analog resistive, single touch*
• Operation		100 gram force [0.8 N] maximum
• Life		Minimum of 1,000,000 cycles
Features:		
• User Memory	1MB	
• Number of Screens	Up to 999 – limited by project memory usage	
• Beep (Internal)	Yes	
• Keypad Function Buttons	Five user defined function key buttons with the ability to customize label with an overlay. Minimum of 500,000 cycles	N/A
• Keypad Function Button LEDs	Each function key button includes a red LED that can be user programmed.	N/A
• Programming Port	RJ12 serial	
• Serial Communications	RJ12 serial communications port (RS-232)	



**\* NOTE:** The Touchscreen is designed to respond to a single touch. If it is touched at multiple points at the same time, an unexpected object may be activated.

## EA3-S3ML-RN and EA3-S3ML-R Specifications (cont'd)

2

EA3-S3ML-RN & EA3-S3ML-R Specifications (cont'd)		
Part Number:	EA3-S3ML-RN	
Screen Objects:	EA3-S3ML-R	
• Functional Devices	Push Button, Switch, Indicator Button, Indicator Light, Graphic Indicator Light, Numeric Display, Numeric Entry, Inc/Dec Value, Bar Graph, Bitmap Button, Static Bitmap, Dynamic Bitmap, Recipe Button, Static Text, Lookup Text, Dynamic Text, Text Entry, Screen Change Push Button, Screen Selector, Adjust Contrast, Function Key Configuration Object, Real Time Graph, Line Graph, Analog Meter.	
• Static Shapes	Lines, Rectangles, Circles and Frames	
• Displayable Fonts	Fixed fonts: 4x6, 6x6, 6x6B, 6x8, 8x16, 8x32, 8x64, 16x16, 16x32, 16x64, 32x16, 32x32, 32x64, and Windows fonts	
Electrical:		
• Input Power	RJ12 port to any AutomationDirect PLC RJ12 port	
• Power Consumption	1.05 W (RJ12)	
• Maximum Inrush Current	3.5 A for 50µs	
• Acceptable External Power Drop Duration	Maximum 1ms	
Environmental:		
• Operating Temperature	0 to 50 °C (32 to 122 °F); IEC 60068-2-14 (Test Nb, Thermal Shock)	
• Storage Temperature	-20 to +60 °C (-4 to +140 °F) IEC 60068-2-1 (Test Ab, Cold) IEC 60068-2-2 (Test Bb, Dry Heat) IEC 60068-2-14 (Test Na, Thermal Shock)	
• Humidity	5-95% RH (non-condensing)	
• Environmental Air	For use in Pollution Degree 2 environment, no corrosive gases permitted	
• Housing Material	ABS Plastic	
• Gasket Material	Ships without gasket	Silicone Rubber
• Overlay Sheet Material	PET	
• Vibration	IEC60068-2-6 (Test Fc)	
• Shock	IEC60068-2-27 (Test Ea)	
• Altitude	Up to 2000m(6562ft)	
• Noise Immunity	(EN61131-2) EN61000-4-2 (ESD), EN61000-4-3 (RFI) EN61000-4-4 (FTB) EN61000-4-5 (Serge) EN61000-4-6 (Conducted) EN61000-4-8 (Power frequency magnetic field immunity) (Local Test) RFI, (145MHz, 440Mhz 10W @ 10cm) Impulse 1000V @ 1µs pulse	
• Enclosure	With EA-MG-S3ML-GSK - NEMA 250 type 4/4X indoor use only, UL50 type 4X indoor use only IP-65 indoor use only (Not tested by UL) (When mounted correctly)  Without EA-MG-S3ML-GSK - NEMA 250 type 1 indoor use only, UL type 1 indoor use only IP-20 indoor use only (Not tested by UL) (When mounted correctly)	
• Agency Approvals	CE (EN61131-2), UL61010, CUL Canadian C22.2, UL E157382, RoHS (2011/65/EU) To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page	

## EA3-S3ML-RN and EA3-S3ML-R Specifications (cont'd)

EA3-S3ML-RN & EA3-S3ML-R Specifications (cont'd)		
Part Number:	EA3-S3ML-RN	EA3-S3ML-R
Physical:		
• Enclosure Mounting Thickness Range	0.04" – 0.2" [1 – 5 mm]	
• Mounting Clip Screw Torque Range	21 – 28 oz-in [0.15 – 0.20 Nm]	
• Weight	5.4 oz. (152g)	5.5 oz. (156g)

2

## EA3-S3ML and EA3-T4CL Specifications

2

Specifications		
Part Number:	EA3-S3ML	EA3-T4CL
Description:	128 x 64 pixel LCD display Five user defined keypad function buttons with five user defined LED indicators	480 x 272 pixel LCD display
Display:		
• Type	3.1" STN Monochrome with LED Backlight	4.3" TFT Graphical type with LED Backlight
• Resolution	128 (W) x 64 (H) pixel	480 (W) x 272 (H) pixel
• Color	2 colors (normal / inverse)	32768 colors
• Display Brightness (Reference)	W: Typ. 150 nit G: Typ. 150 nit R: Typ. 40 nit	370 nits (typ)
• Viewing Area Size	2.78" (W) x 1.53" (H) 70.7 mm x 38.8 mm	3.89" (W) x 2.26" (H) 98.70 mm x 57.50 mm
• Active Area Size	2.62" (W) x 1.31" (H) mm 66.52 mm x 33.24 mm	3.74" (W) x 2.12" (H) mm 95.04 mm x 53.86 mm
• Contrast / Brightness	Adjusted from the panel's built-in configuration setup menu	
• Viewing Angle (Landscape Mode)	3, 6, 9 o'clock axis → 45 degrees 12 o'clock axis → 30 degrees	3, 6, 9, 12 o'clock axis → 80 degrees
Backlight:		
• Type	LED	
• Color	White, Red, Green (12 colors)	White
• User Replaceable	No	
Touch Screen:		
•Type	Analog resistive, single touch*	
• Operation	100 gram force [0.8 N] maximum	82 gram force [0.98 N] maximum
• Life	Minimum of 1,000,000 cycles	
Features:		
• User Memory	3MB	14MB
• Number of Screens	Up to 999 – limited by project memory usage	
• Beep (Internal)	Yes	
• Keypad Function Buttons	Five user defined function key buttons with the ability to customize label with an overlay. Minimum of 500,000 cycles	N/A
• Keypad Function Button LEDs	Each function key button includes a red LED that can be user programmed.	N/A
• Programming Port	USB 2.0 Type B Built-in Ethernet port	
• Serial Communications	RJ12 serial communications port (RS-232) 15-pin D-sub serial communications port (RS-232, RS-485 / 422).	
• Ethernet Communications	10/100 Base-T (Automatic Negotiation MDI/MDIX)	



**\* NOTE:** The Touchscreen is designed to respond to a single touch. If it is touched at multiple points at the same time, an unexpected object may be activated.



## EA3-S3ML and EA3-T4CL Specifications (cont'd)

EA3-S3ML & EA3-T4CL Specifications (cont'd)		
Part Number:	EA3-S3ML	EA3-T4CL
Screen Objects:		
• Functional Devices	Push Button, Switch, Indicator Button, Indicator Light, Graphic Indicator Light, Numeric Display, Numeric Entry, Inc/Dec Value, Bar Graph, Bitmap Button, Static Bitmap, Dynamic Bitmap, Recipe Button, Static Text, Lookup Text, Dynamic Text, Text Entry, Screen Change Push Button, Screen Selector, Adjust Contrast, Function Key Configuration Object, Real Time Graph, Line Graph, Analog Meter.	
• Static Shapes	Lines, Rectangles, Circles and Frames	
• Displayable Fonts	Fixed fonts: 4x6, 6x6, 6x6B, 6x8, 8x16, 8x32, 8x64, 16x16, 16x32, 16x64, 32x16, 32x32, 32x64, and Windows fonts	
Electrical:		
• Input Power	RJ12 port to any AutomationDirect PLC RJ12 port (for serial communication only) USB Micro-B port to PC 10.2 - 26.4 VDC; Class 2 or SELV (Safety Extra-Low Voltage)or Limited Energy Circuit power supply	USB Micro-B port to PC 10.2 - 26.4 VDC; Class 2 or SELV (Safety Extra-Low Voltage)or Limited Energy Circuit power supply
• Power Consumption	1.05W (RJ12) 2W (USB) 3W (External Power Supply)	2.5W (USB) 4W (External Power Supply)
• Maximum Inrush Current	20A for 240µs (DC power supply)	22A for 240µs (DC power supply)
• Acceptable External Power Drop Duration	Maximum 1ms	
Environmental:		
• Operating Temperature	0 to 50 °C (32 to 122 °F); IEC 60068-2-14 (Test Nb, Thermal Shock)	
• Storage Temperature	-20 to +60 °C (-4 to +140 °F) IEC 60068-2-1 (Test Ab, Cold) IEC 60068-2-2 (Test Bb, Dry Heat) IEC 60068-2-14 (Test Na, Thermal Shock)	
• Humidity	5-95% RH (non-condensing)	
• Environmental Air	For use in Pollution Degree 2 environment, no corrosive gases permitted	
• Housing Material	ABS Plastic	ABS-GF20
• Gasket Material	Silicone Rubber	
• Overlay Sheet Material	PET	
• Vibration	IIEC60068-2-6 (Test Fc)	
• Shock	IEC60068-2-27 (Test Ea)	
• Altitude	Up to 2000m(6562ft)	
• Noise Immunity	(EN61131-2) EN61000-4-2 (ESD), EN61000-4-3 (RFI) EN61000-4-4 (FTB) EN61000-4-5 (Serge) EN61000-4-6 (Conducted) EN61000-4-8 (Power frequency magnetic field immunity) (Local Test) RFI, (145MHz, 440Mhz 10W @ 10cm) Impulse 1000V @ 1µs pulse	
• Enclosure	NEMA 250 type 4/4X indoor use only UL50 type 4X indoor use only IP-65 indoor use only (not tested by UL) (When mounted correctly)	
• Agency Approvals	CE (EN61131-2), UL61010, CUL Canadian C22.2, UL E157382, RoHS (2011/65/EU) To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page	

## EA3-S3ML and EA3-T4CL Specifications (cont'd)

2

EA3-S3ML & EA3-T4CL Specifications (cont'd)		
Part Number:	<i>EA3-S3ML</i>	<i>EA3-T4CL</i>
Physical:		
• Enclosure Mounting Thickness Range	0.04" – 0.2" [1 – 5 mm]	
• Mounting Clip Screw Torque Range	21 – 28 oz-in [0.15 – 0.20 Nm]	
• Weight	6.7 oz. (190g)	7.76 oz. (220g)

# EA3-T6CL, EA3-T8CL and EA3-T10CL Specifications

2

EA3-T6CL, EA3-T8CL & EA3-T10CL Specifications			
Part Number:	EA3-T6CL	EA3-T8CL	EA3-T10CL
Description:	320 x 240 pixel LCD display (Landscape mode), Five user defined keypad function buttons with five user defined LED indicators	800 x 600 pixel LCD display (Landscape mode), Seven user defined keypad function buttons with seven user defined LED indicators	
Display:			
• Type	5.7" TFT Graphical type with LED Backlight	8.4" TFT Graphical type with LED Backlight	10.4" TFT Graphical type with LED Backlight
• Resolution	320 (W) x 240 (H) pixel (Landscape Mode) 240 (W) x 320 (H) pixel (Portrait Mode)	800 (W) x 600 (H) pixel (Landscape Mode) 600 (W) x 800 (H) pixel (Portrait Mode)	
• Color	32768 colors		
• Display Brightness (Reference)	270 nits (typ)	295 nits (typ)	270 nits (typ)
• Viewing Area Size	4.57" (W) x 3.44" (H) [116.2 mm x 87.4 mm]	6.86" (W) x 5.17" (H) [174.2 mm x 131.2 mm]	8.46" (W) x 6.41" (H) [214.8 mm x 162.7 mm]
• Active Area Size	4.54" (W) x 3.40" (H) [115.2 mm x 86.4 mm]	6.71" (W) x 5.03" (H) [170.4 mm x 127.8 mm]	8.31" (W) x 6.24" (H) [211.2 mm x 158.4 mm]
• Contrast / Brightness	Adjusted from the panel's built-in configuration setup menu		
• Viewing Angle (Landscape Mode)	3, 9 o'clock axis → 80 degrees 6 o'clock axis → 65 degrees 12 o'clock axis → 80 degrees	3, 9 o'clock axis → 80 degrees 6 o'clock axis → 60 degrees 12 o'clock axis → 80 degrees	3, 9 o'clock axis → 80 degrees 6 o'clock axis → 80 degrees 12 o'clock axis → 60 degrees
Backlight:			
• Type	LED		
• Color	White		
• User Replaceable	No		
Touch Screen:			
•Type	Analog resistive, single touch*		
• Operation	82 gram force [0.8 N] maximum		
• Life	Minimum of 1,000,000 cycles		
Features:			
• User Memory	6MB	30MB	
• Number of Screens	Up to 999 – limited by project memory usage		
• Beep (Internal)	Yes		
• Keypad Function Buttons	Five user defined function key buttons with the ability to customize label with an overlay. Minimum of 500,000 cycles	Seven user defined function key buttons with the ability to customize label with an overlay. Minimum of 500,000 cycles	
• Keypad Function Button LEDs	Each function key button includes a red LED that can be user programmed.		
• Programming Port	USB 2.0 Type B		
• Serial Communications	RJ12 serial communications port (RS-232) 15-pin D-sub serial communications port (RS-232, RS-485 / 422).		
• Ethernet Communications	10/100 Base-T (Automatic Negotiation) with EA-ECOM Module		



**\* NOTE:** The Touchscreen is designed to respond to a single touch. If it is touched at multiple points at the same time, an unexpected object may be activated.

## EA3-T6CL, EA3-T8CL and EA3-T10CL Specifications (cont'd)

2

EA3-T6CL, EA3-T8CL and EA3-T10CL Specifications (cont'd)				
Part Number:	EA3-T6CL		EA3-T8CL	EA3-T10CL
Screen Objects:				
• Functional Devices	Push Button, Switch, Indicator Button, Indicator Light, Graphic Indicator Light, Numeric Display, Numeric Entry, Inc/Dec Value, Bar Graph, Bitmap Button, Static Bitmap, Dynamic Bitmap, Recipe Button, Static Text, Lookup Text, Dynamic Text, Text Entry, Screen Change Push Button, Screen Selector, Adjust Contrast, Function Key Configuration Object, Real Time Graph, Line Graph, Analog Meter.			
• Static Shapes	Lines, Rectangles, Circles and Frames			
• Displayable Fonts	Fixed fonts: 4x6, 6x6, 6x6B, 6x8, 8x16, 8x32, 8x64, 16x16, 16x32, 16x64, 32x16, 32x32, 32x64, and Windows fonts			
Electrical:				
• Input Power	10.2 - 26.4 VDC; Class 2 or SELV (Safety Extra-Low Voltage) or Limited Energy Circuit power supply			
• Power Consumption	7.5 W	8W	10W	
• Maximum Inrush Current	13A for 800µs	10A for 1ms		
• Acceptable External Power Drop Duration	Maximum 1ms			
Environmental:				
• Operating Temperature	0 to 50 °C (32 to 122 °F); Maximum surrounding air temperature rating: 50 °C (122 °F) IEC 60068-2-14 (Test Nb, Thermal Shock)			
• Storage Temperature	-20 to +60 °C (-4 to +140 °F) IEC 60068-2-1 (Test Ab, Cold) IEC 60068-2-2 (Test Bb, Dry Heat) IEC 60068-2-14 (Test Na, Thermal Shock)			
• Humidity	5-95% RH (non-condensing)			
• Environmental Air	For use in Pollution Degree 2 environment, no corrosive gases permitted			
• Housing Material	ABS Plastic			
• Gasket Material	Silicone Rubber			
• Overlay Sheet Material	PET			
• Vibration	IIEC60068-2-6 (Test Fc)			
• Shock	IEC60068-2-27 (Test Ea)			
• Altitude	Up to 2000m(6562ft)			
• Noise Immunity	(EN61131-2) EN61000-4-2 (ESD), EN61000-4-3 (RFI) EN61000-4-4 (FTB) EN61000-4-5 (Serge) EN61000-4-6 (Conducted) EN61000-4-8 (Power frequency magnetic field immunity)			
• Enclosure	(Local Test) RFI, (145MHz, 440Mhz 10W @ 10cm) Impulse 1000V @ 1µs pulse NEMA 250 type 4/4X indoor use only UL50 type 4X indoor use only IP-65 indoor use only (not tested by UL) (When mounted correctly)			
• Agency Approvals	CE (EN61131-2), UL508, CUL Canadian C22.2 No. 142-M95, UL E157382, RoHS (2011/65/EU) To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page			

## EA3-T6CL, EA3-T8CL and EA3-T10CL Specifications (cont'd)

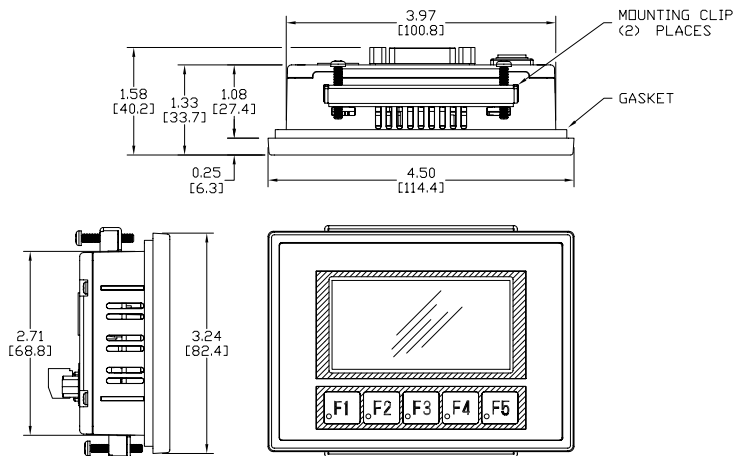
EA3-T6CL, EA3-T8CL and EA3-T10CL Specifications (cont'd)			
<b>Physical:</b>			
• Enclosure Mounting Thickness Range	0.04" – 0.2" [1 – 5 mm]		
• Mounting Clip Screw Torque Range	21 – 28 oz-in [0.15 – 0.20 Nm]	63 – 77 oz-in [0.45 – 0.55 Nm]	
• Weight	21.1 oz. (600g)	39.9 oz. (1130g)	57.1 oz. (1620g)

2

## EA3-S3ML-RN, EA3-S3ML-R, EA3-S3ML Panel Dimensions

### Panel Dimensions

Units: Inches [mm]

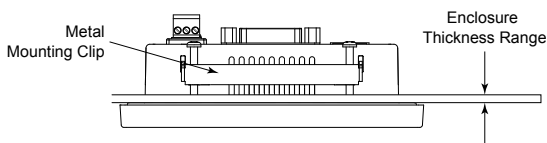


See our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering drawings.

### Enclosure Thickness and Mounting Clip Screw Torque

The enclosure mounting thickness range for the panels is 0.04"–0.2" [1–5 mm].

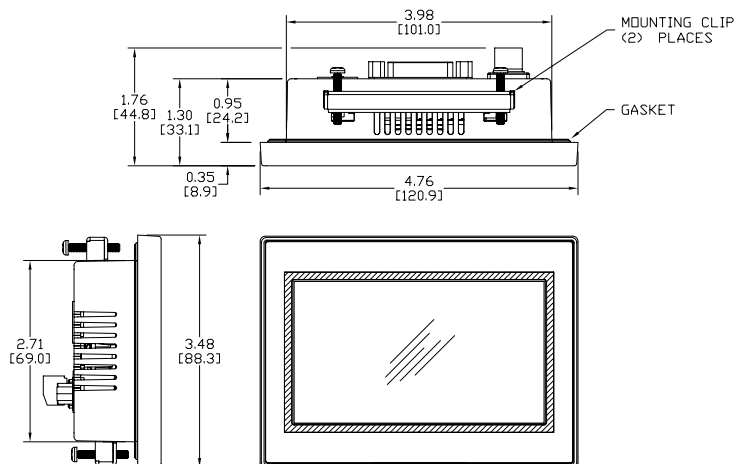
The screw torque range for the screws used on the panel mounting clips is 21 - 28 oz·in (0.15 - 20 Nm).



## EA3-T4CL Panel Dimensions

### Panel Dimensions

Units: Inches [mm]

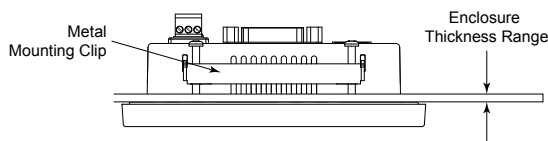


See our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering drawings.

### Enclosure Thickness and Mounting Clip Screw Torque

The enclosure mounting thickness range for the panels is 0.04"–0.2" [1–5 mm].

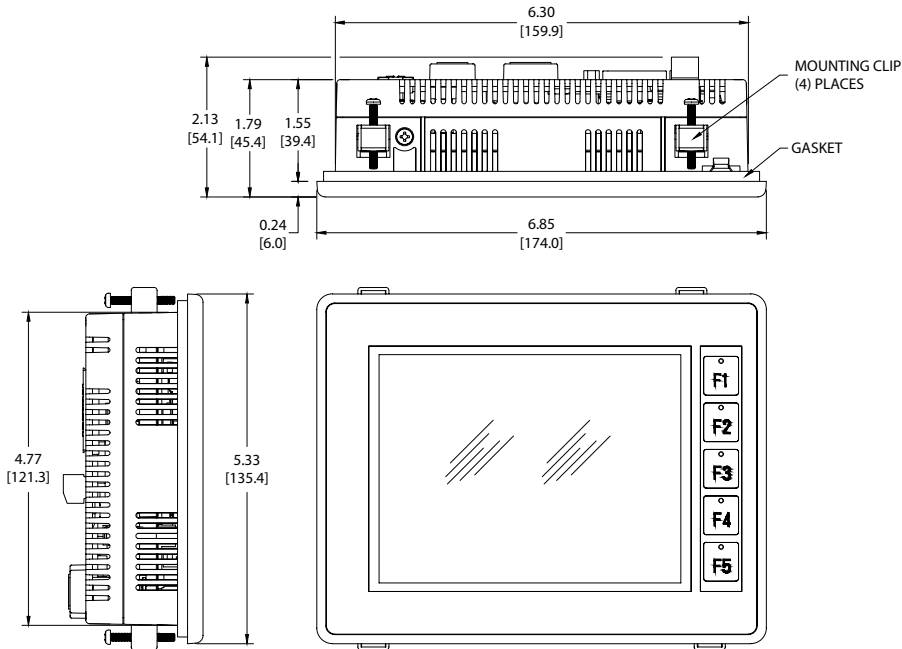
The screw torque range for the screws used on the panel mounting clips is 21 - 28 oz·in (0.15 - 20 Nm).



## EA3-T6CL Panel Dimensions

### Panel Dimensions

Units: Inches [mm]

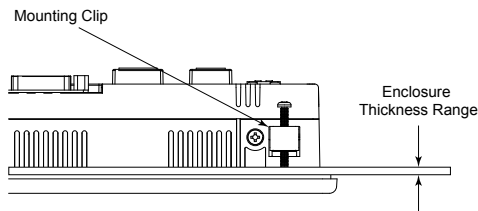


See our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering drawings.

### Enclosure Thickness and Mounting Clip Screw Torque

The enclosure mounting thickness range for the panels is 0.04"–0.2" [1–5 mm].

The screw torque range for the screws used on the panel mounting clips is 21 - 28 oz-in (0.15 - 20 Nm).

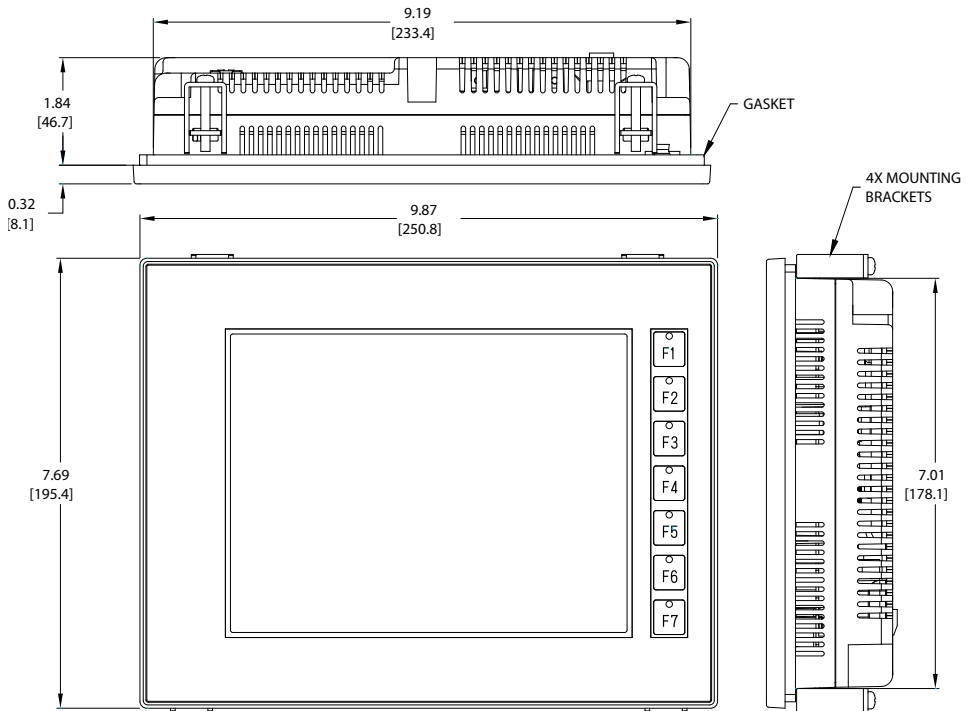




# EA3-T8CL Panel Dimensions

## Panel Dimensions

Units: Inches [mm]

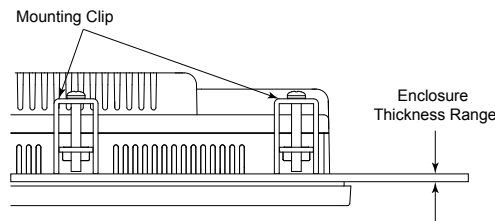


See our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering drawings.

## Enclosure Thickness and Mounting Clip Screw Torque

The enclosure mounting thickness range for the panels is 0.04"–0.2" [1–5 mm].

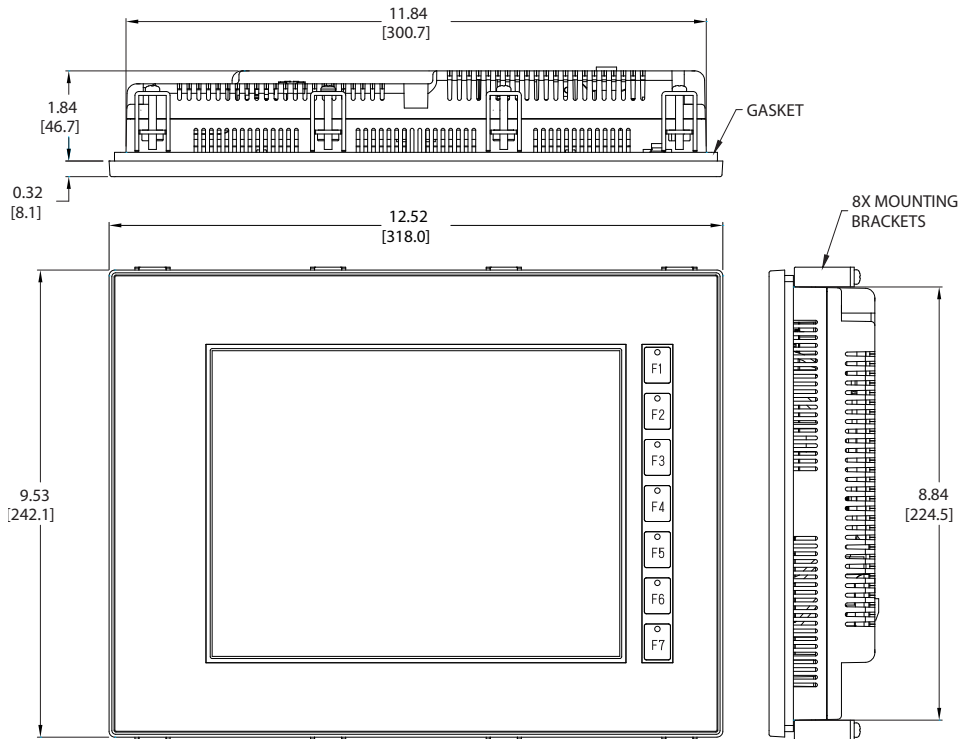
The screw torque range for the screws used on the panel mounting clips is 63 - 77 oz-in (0.45 - 55 Nm).



## EA3-T10CL Panel Dimensions

### Panel Dimensions

Units: Inches [mm]

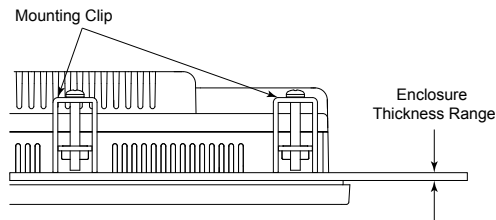


See our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering drawings.

### Enclosure Thickness and Mounting Clip Screw Torque

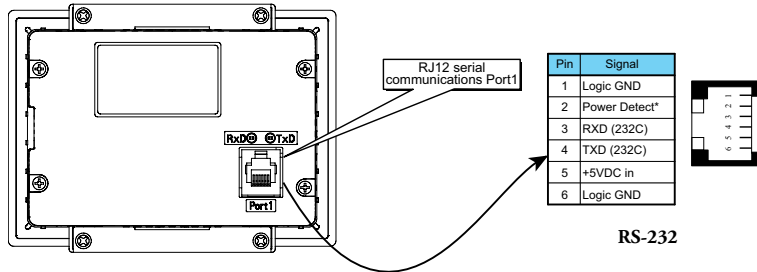
The enclosure mounting thickness range for the panels is 0.04"–0.2" [1–5 mm].

The screw torque range for the screws used on the panel mounting clips is 63 - 77 oz·in (0.45 - 55 Nm).

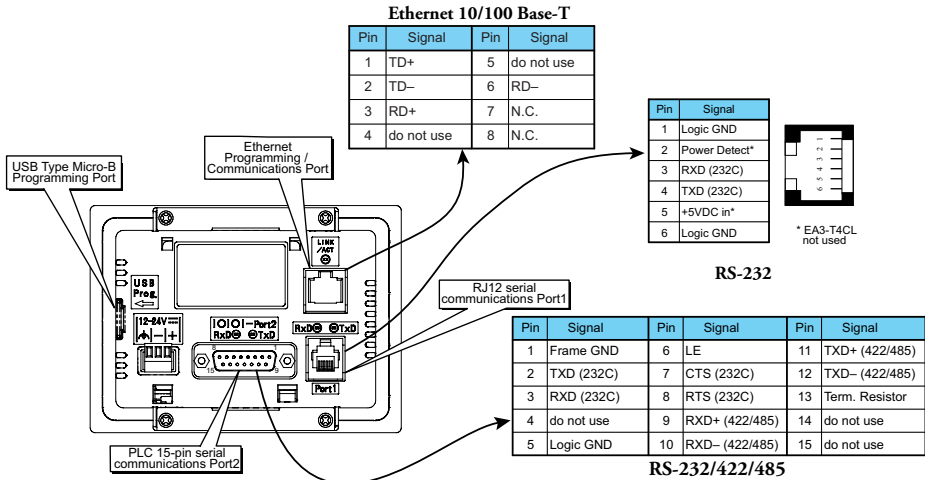


## Communications Ports

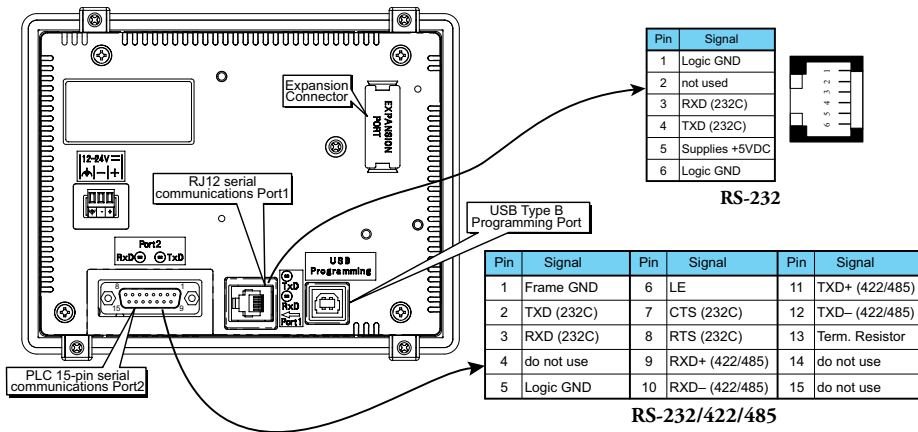
### EA3-S3ML-RN and EA3-S3ML-R



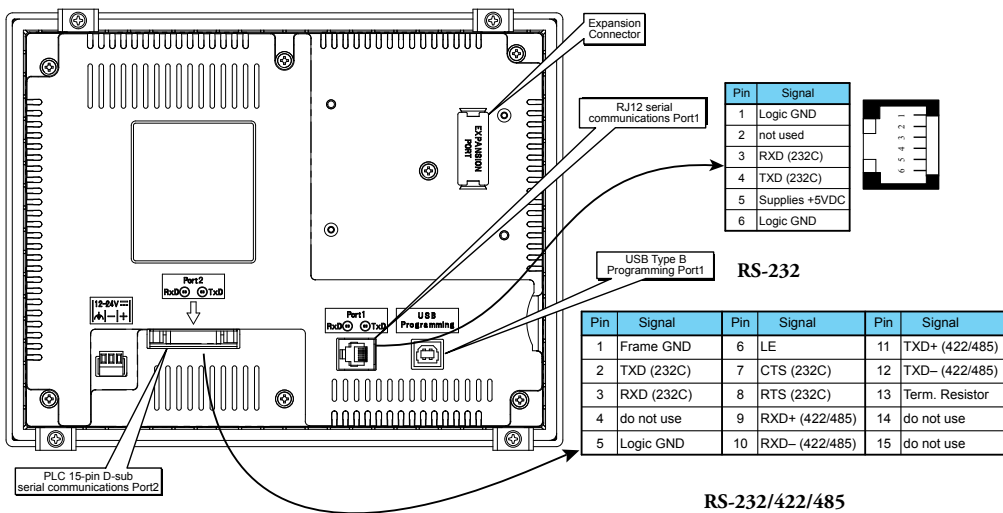
### EA3-S3ML and EA3-T4CL



## EA3-T6CL



## EA3-T8CL and EA3-T10CL



**NOTE:** The panel has a built-in RJ12 serial communications port (Port1 - RS-232) and a built in 15-pin serial communications port (Port2 - RS-232/422/485). Only one of the ports can be used with a connected PLC.



# ACCESSORIES

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# CHAPTER 3




## In this Chapter...

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D-SUB 15-pin to Terminal Block Adapters.....	3-8
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## Accessories

3

### C-more Micro Programming Software & Programming Cables

Part Number		Description
EA-MG-PGMSW		<b>C-more</b> Micro Windows-based programming software, CD. For use with <b>C-more</b> Micro panels. Requires USB port connection from PC to <b>C-more</b> Micro panel. Cables sold separately. Downloadable version available from the Web site at no charge.
USB-CBL-AB6		Standard USB 2.0 cable with Standard-A plug to Standard-B plug, suitable for all USB devices. 6 ft. (1.8 m) cable shown as example. Maximum cable length is 15 ft (4.5 m).
USB-CBL-AMICB6		Programming cable, USB A to micro-B USB, 6ft cable length. For use with 3 and 4-inch panels.



**NOTE:** Adding optional EA-ECOM module allows programming via an Ethernet connection via a Cat5e cable.

### C-more Micro Panel Accessories

Part Number		Description
EA-ECOM		<b>C-more</b> Micro communication expansion module, (1) RJ45 10/100 Mbps Ethernet port. For use with EA3 series 6in, 8in and 10in HMIs. For programming and PLC communications.
EA-ADPTR-4		DSUB port adapter, 15-pin male to 15-pin female, right angle cable entry. For use with <b>C-more</b> Micro EA1 series 4in and 6in HMIs, <b>C-more</b> Micro EA3 series 3in, 4in, and 6in HMIs, <b>C-more</b> EA9 6in and 7in HMIs.
EA-COMCON-3		RS-422/485 terminal block, right angle cable entry. For use with <b>C-more</b> Micro EA1 series 4in and 6in HMIs, <b>C-more</b> Micro EA3 series 3in, 4in, and 6in HMIs, <b>C-more</b> EA9 6in and 7in HMIs.
EA-COMCON-3A		DSUB port adapter, 15-pin male to 6-pole RS-422/485 terminal block, straight cable entry. For use with <b>C-more</b> Micro EA1 series 3in with EA1-MG-SP1, <b>C-more</b> Micro EA3 series 8in and 10in HMIs, <b>C-more</b> EA9 8in, 10in, 12in and 15in HMIs.
EA-MG-COV-CL		Optional clear screen overlay used to protect <b>C-more</b> 3-inch Micro displays from minor scratches and wear. Package contains three clear screen overlays.
EA-4-COV3		Optional clear screen overlay used to protect <b>C-more</b> 4-inch Micro displays from minor scratches and wear. Package contains three clear screen overlays.
EA-6-COV2		Optional clear screen overlay used to protect <b>C-more</b> 6-inch Micro displays from minor scratches and wear. Package contains three clear screen overlays.
EA-8-COV2		Optional clear screen overlay used to protect <b>C-more</b> 8-inch Micro displays from minor scratches and wear. Package contains three clear screen overlays.
EA-10-COV2		Optional clear screen overlay used to protect <b>C-more</b> 10-inch Micro displays from minor scratches and wear. Package contains three clear screen overlays.

## C-more Micro Programming Software

**C-more®** Micro Programming Software is a spin-off of its powerful sibling **C-more** Touch Panel programming software. It offers very high end features designed to reduce your configuration time. Simply drag and drop the objects from the object bar (right side of screen) onto the the screen construction area. Then configure your PLC tags and click on the objects you wish to use. Use the built-in simulator to review your work on your PC before ever downloading your project!



3

### Thumbnail project preview pane

Helps keep track of multi-screen projects.

### Built-in user object/screen libraries

Save time by re-using your custom objects and screens.

### Scrolling object selection window

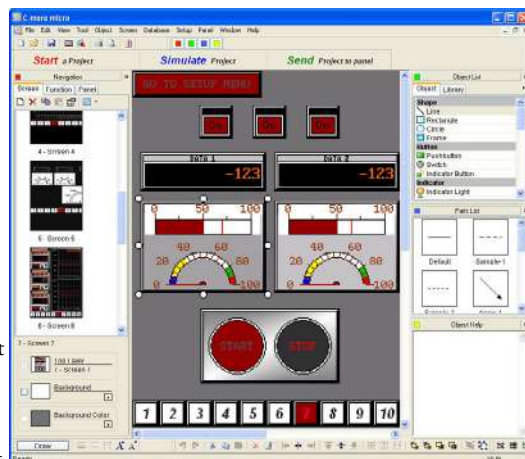
Lets you find the object you want fast. Just drag and drop it on the screen.

### Scrolling help window

Gives you helpful information on each object

### Built-in project simulator

- Runs your project on your PC
- Test all of your screens before downloading
- Time savings pays for the panel



### PC Requirements:

Following are the minimum system requirements for running **C-more** Micro Programming Software, EA-MG-PGMSW, on a PC:

- Operating System - Windows® 7 (32 and 64 bit), Windows 8 (32 and 64 bit); Windows 8.1 (32 and 64 bit), Windows 10
- 150 MB free hard-disk space
- CD-ROM or DVD drive for installing software from the CD, or internet access to download free programming software
- USB port or Ethernet port if using optional EA-ECOM for project transfer from software to touch panel

## C-more Micro Programming Software (cont'd)


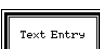

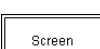
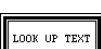
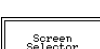
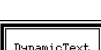
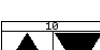


C-more Micro Panel Objects			
Object	Graphic	Object	Graphic
<p><b>Shape</b> objects, just like with drawing tools, allow the user to insert shapes, such as a straight line, circle, or rectangle drawing into a project. When a Shape is inserted into a project, a window opens to allow the user to setup all available parameters for the Line object. Some of the uses for Shape Objects include but are not limited to adding callouts, pointers, or indicators.</p>		<p>The <b>Numeric Entry</b> object is used to enter a value from your Panel to a PLC Register. This object, when selected, opens a Numeric Keypad that allows the user to enter a new value that will be written to the assigned Tag Name. The Numeric Entry supports numeric Signed Decimal, Unsigned Decimal, BCD, and Floating Point data types with up to 11 digits, including decimal points. User Defined Alpha Numeric Prefix and Suffix values are also supported.</p>	
<p>The <b>Frame</b> object allows the user to insert a Frame to the project that can be used to Frame other objects. Some of the uses for Frame object include but are not limited to graphically separating objects for different operations that may appear on one screen and emphasizing pushbuttons or other objects that may require more attention by the operator.</p>		<p>The <b>Increment/Decrement Value</b> object is used to add or subtract a value by pressing a button on the Panel. Basically the object uses two Tags, one to read a value from and another to write a modified value to. The Increment/Decrement Value supports numeric Signed Decimal, Unsigned Decimal, BCD, and Floating Point data types with up to 11 digits, including decimal points. The Increment and decrement values are also user selectable.</p>	
<p>The <b>Pushbutton</b> object is available from the Button Category of the Object List window. The Pushbutton object is an electronic version of a typical Pushbutton normally found on control panels. The Pushbutton object can be used to activate or deactivate components assigned to a Discrete Tag Name.</p>		<p>The <b>Real Time Graph</b> object displays the value stored in up to eight PLC tags, over a history of up to 24 points each. One point is added at each refresh.</p>	
<p>The <b>Switch</b> object is an electronic version of a typical Switch that normally can be found on control panels. The Switch object can be used to activate or deactivate components assigned to a Discrete Tag Name.</p>		<p>The <b>Line Graph</b> object displays the values of up to 24 PLC address points. Up to eight address arrays can be displayed. The line is drawn in its entirety at each refresh.</p>	
<p>The <b>Radio Button</b> object is an electronic version of a set of buttons that have a similar appearance to the classic radio tuning buttons. The Radio Button allows a minimum of two buttons and a maximum of eight buttons. The operation of Radio Buttons only allows one button to be On at a time.</p>		<p>The <b>Analog Meter</b> object is used to display the current value of a Tag Name.</p>	
<p>The <b>Indicator Button</b> object is available from the Button Category of the Object List window. The Indicator Button object is an electronic version of a typical Indicator Button normally found on control panels. The Indicator Button is a combination of a Pushbutton and an Indicator Light. The Indicator Button can be used to activate or deactivate components assigned to a Discrete Tag Name.</p>		<p>The <b>Bar Graph</b> object is used to monitor up to two assigned Tag Names continuously. This object has various appearances depending upon the relative value of the tags. The Bar Graph can be used to create digital versions of level, current, and flow meters to name a few samples, or gauges that measure speed and other measurable data.</p>	
<p>The <b>Tri-State Switch</b> Object consists of a set of three Pushbuttons that allow to configure the first button to the left as a Reset that turns the other two buttons Off, and configure the other two buttons with individual Discrete Tag Names.</p>		<p>The <b>Bitmap Button</b> object offers the ability to use a Bitmap graphic to perform the functions of a Button. This allows users to create their own graphics and implement them within the software project. The Bitmap Button object can be used to activate or deactivate components assigned to a Discrete Tag Name.</p>	
<p>The <b>Indicator Light</b> object is an electronic version of a typical Indicator Light normally found on industrial control panels. The Indicator Light can be configured to display the status of the assigned Discrete Tag Name.</p>		<p>The <b>Static Bitmap</b> offers the ability to display a Bitmap graphic on any screen. The Static Bitmap does not change state. Refer to the Dynamic Bitmap Object if you require the graphic object to change state based on a Tag Value in your PLC. The dialog box for a "Static Bitmap" object allows you to "read from disk" and select a graphic file for import. Graphics must be in one of the following formats: .BMP .WMF .JPG .JPEG</p>	
<p>The <b>Graphic Indicator Light</b> object is a more enhanced version of the "Indicator Light Object" that allows the user to choose more detailed graphics to display the status of a tag. This object is an electronic version of a typical Indicator Light normally found on industrial control panels. The Indicator Light can be configured to display the status of the assigned Discrete Tag Name.</p>		<p>The <b>Dynamic Bitmap</b> object offers the ability to make an object using two different Bitmap graphics that will display one graphic when the Tag is On and a different graphic when the Tag is Off. Use your own bitmap designs or use some of the bitmaps provided with the software that are located in the User Graphic Library.</p>	
<p>The <b>Numeric Display</b> consists of a frame that displays a real-time numeric value according to the value of data received from an assigned Tag Name. The Numeric Display supports numeric Signed Decimal, Unsigned Decimal, BCD, and Floating Point data types with up to 11 digits, including decimal point. User Defined Alpha Numeric Prefix and Suffix values are also supported.</p>		<p>The <b>Multi-State Bitmap</b> (version 2.50 and later) displays one of up to 16 images based on the status of a tag value assigned to each image. It can be used to create animation.</p>	

C-more Micro Panel Objects continued at top of next page.



## C-more Micro Programming Software (cont'd)

3

C-more Micro Panel Objects			
Object	Graphic	Object	Graphic
<p><b>Recipe</b> objects make it easy to make a large number of tag changes with the push of a single button. Create Recipes with up to 99 entries, and multiple sets of values. Then just push a button to load an entire set of values into the group of recipe tags.</p>		<p>The <b>Text Entry</b> object is used to enter an ASCII string. Two entry options allow use of an on-screen keypad or the hardware function keys to enter characters.</p>	
<p>The <b>Static Text</b> object is used to display a Frame with a personalized Message. This Frame and Message can be placed on any screen and any location within the screen.</p>		<p>The <b>Screen Change Pushbutton</b> object is available from the Control Category of the Object List window. The Screen Change Pushbutton object is a pushbutton that can be configured to activate another screen in the project. This object may be edited to various colors and sizes. Users can configure the button to activate the Power-Up screen, Forward Screen, Previous Screen, or any one of the project screens.</p>	
<p>The <b>Lookup Text</b> object is used to display a Frame with a personalized Message. This Frame and Message can be placed on any screen and any location within the screen. The object is always displayed like a sign but is configured to display only the message prompted by an assigned Tag Name. Messages are retrieved from a Message Database which is configured by the user with text defined by the user. The Lookup Text Object will scroll text up to 128 characters.</p>		<p>The <b>Screen Selector</b> object is available from the Control Category of the Object List window. This object is an enhanced version of the Screen Change pushbutton in that it offers many more features and defaults with data from screens in the project. This helps to save time by not having to create Screen change buttons for each screen. This object may be edited to various colors and sizes.</p>	
<p>The <b>Dynamic Text</b> object is used to display text that is retrieved from data stored in a Tag. The Tag Name is assigned to registers in the PLC that contain set character data. The data can be stored in the PLC in ASCII format and may include information such as machine numbers, locations, part numbers, and such. The Message can be configured to be visible (Trigger) when an associated Tag Name is On or Off. This object can be placed on any screen and any location within the screen. The Dynamic Text Object will scroll text up to 40 characters.</p>		<p>The <b>Adjust Contrast</b> object is used to allow the operator to adjust the Panel Display Contrast. The default Display setting often works in most applications, however lighting may vary based on the location of each application. In these cases the operator can use this object to make adjustments. The current display setting value will appear on the top of the button and will change as the arrow keys are pressed. This button can be modified to various sizes.</p>	
<p>The <b>Scroll Text</b> object is available from the Text Category of the Object List window. The Scroll Text object is an electronic version of a marquee. It is similar to the Static Text Object. If the text in the object does not fit in the window, it will scroll from right to left across the window. The Scroll Text object does not require a Tag Name assignment. The Scroll Text Object has a maximum character limit of 128 characters.</p>		<p>The <b>Function</b> object is used to assign the panels function key buttons to a particular action as well as assigning the control of the LED On/Off status. When a button has been assigned as a shift button, the then F1 through F5 will become F6 through F10. The Function Object buttons will activate when the hardware button is pressed or when the object is pressed on the screen. The object size is restricted so that the keys will line up with the hardware function keys on the panel.</p>	

## EA-ECOM Ethernet Communication Module

The EA-ECOM Ethernet Communication module plugs into the expansion port on the rear of the EA3 series 6, 8, and 10-inch **C-more** Micro panels to allow Ethernet communications for programming and PLC communications at a speed of 10/100 Mbps.

### EA-ECOM



#### PLC Drivers

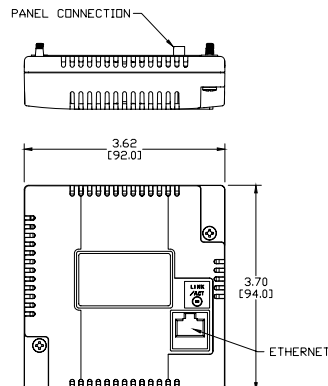
AutomationDirect Productivity Series Ethernet
AutomationDirect Do-more / BRX Ethernet
AutomationDirect CLICK Ethernet
AutomationDirect ECOM Ethernet
Modbus TCP/IP
Allen-Bradley EtherNet/IP (Client) SLC5/05
Allen-Bradley EtherNet/IP (Client) ENI Adapter
Allen-Bradley EtherNet/IP (Client) MicroLogix 1100/1400
Allen-Bradley EtherNet/IP (Client) control/CompactLogix (SLC Mapping only)



Link Status LED (Green)	
On	Ethernet Linked
Off	No Ethernet Comm.
Blinking Green	Comm. Activity



Dimensions: Inches [mm]

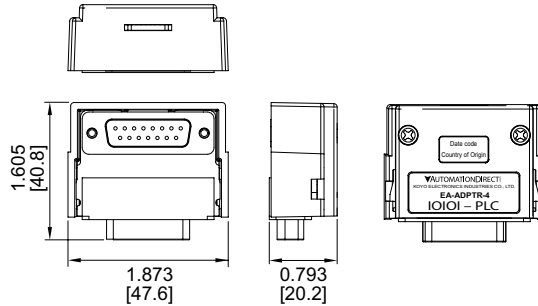


EA-ECOM Specifications	
Part Number	EA-ECOM
Operating Temperature	0 to 50 °C (32 to 122 °F) Maximum surrounding air temperature rating: 50 °C
Storage Temperature	-20 to +60 °C (-4 to +140 °F)
Humidity	5-95% RH (non-condensing)
Environmental Air	For use in pollution degree 2 environment
Vibration	IEC60068-2-6 (Test Fc), 5-9 Hz: 3.5 mm amplitude, 9-150 Hz: 1.0G, sweeping, at a rate of 1 octave/min. (±10%), 10 sweep cycles per axis on each of 3 mutually perpendicular axes
Shock	IEC60068-2-27 (Test Ea), 15 G peak, 11ms duration, three shocks in each direction per axis, on 3 mutually perpendicular axes (total of 18 shocks)
Noise Immunity	NEMA ICS3-304 RFI, (145 MHz, 440 MHz 10 W @ 16 cm) Impulse 1000 V @ 1 µs pulse
Emission	EN55011 Class A (Radiated RF emission)
Enclosure (panel door installation)	NEMA 250 type 4/4X indoor use only UL50 type 4X indoor use only IP-65 indoor use only (When mounted correctly)
Agency Approvals	CE (EN61131-2), UL508, CUL Canadian C22.2 To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page
Mounting Torque	50 oz-in [0.35 N-m]
Weight	0.23 lb [105g]
Ethernet Specification	Conforms to IEEE802.3
Communication Speed	10/100 Base-T (Automatic Negotiation)
Cable Specification	Category 5
Auto MDI / MDI-X	Yes
Connector Type	RJ45

## D-SUB 15-pin 90-degree Communication Port Adapter

The EA-ADPTR-4 adapter plugs into the 15-pin serial port on the rear of the *C-more* Micro panel to allow a PLC communication cable to be plugged in at a 90 degree angle to reduce panel depth requirements. 15-pin straight through pin-out. UL Recognized.

### EA-ADPTR-4



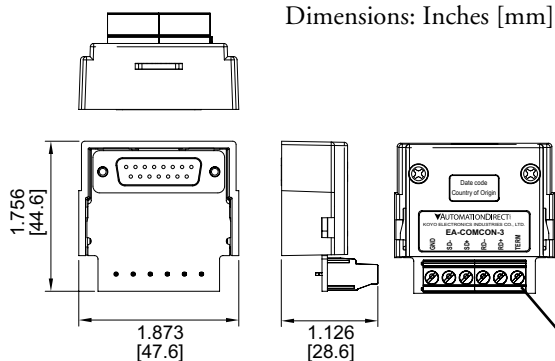
**NOTE:** Due to comm port orientation EA-ADPTR cannot be used with EA3-T8CL and EA3-T10CL.

## D-SUB 15-pin to Terminal Block Adapters

EA-COMCON-3 and EA-COMCON-3A adapters plug into the 15-pin serial port on the rear of the **C-more** Micro panel to allow wire terminal connections for an RS-422/RS-485/DH-485 PLC communication cable.

### EA-COMCON-3

3

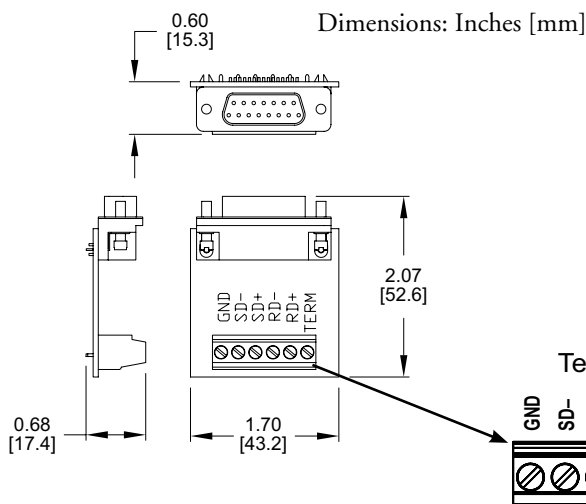


Terminals

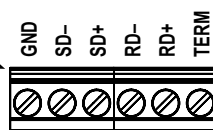


**NOTE:** Due to comm port orientation EA-COMCON-3 cannot be used with EA3-T8CL and EA3-T10CL.

### EA-COMCON-3A



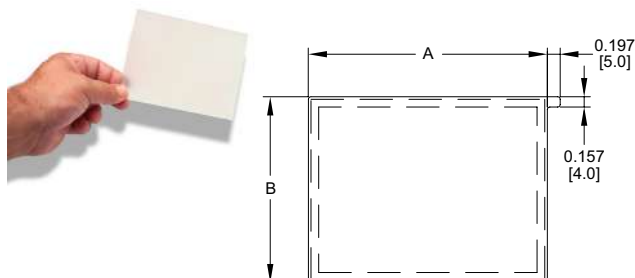
Terminals



## Clear Screen Overlay

Optional clear screen overlays are used to protect *C-more* Micro displays from minor scratches and wear. Package contains three clear screen overlays.

Units: Inches [mm]



Part Number	Dimensions - inch [mm]	
	A	B
EA-MG-COV-CL	3.13 [79.4]	1.75 [44.4]
EA-4-COV3	4.15 [105.5]	2.52 [64.0]
EA-6-COV2	4.91 [124.8]	3.80 [96.4]
EA-8-COV2	7.32 [185.8]	5.44 [138.2]
EA-10-COV2	8.91 [226.2]	6.61 [168.0]

3

### Clear Screen Overlay Installation



**Step 1**  
Remove the overlay from the package



**Step 2**  
Remove the paper backing from the overlay



**Step 3**  
Align the overlay with the screen and press the adhesive firmly into place



**Step 4**  
Remove the protective film\*



**\*NOTE:** The protective cover ships with a thin protective sheet on the face of the cover that needs to be carefully removed. If your panel is not clear, the protective sheet may not have been removed.





# CHAPTER 4

## INSTALLATION & WIRING

---

### In this Chapter...

<b>Safety Guidelines</b> .....	4-2
Plan for Safety .....	4-2
<b>Introduction</b> .....	4-3
<b>Panel Cutout Dimensions</b> .....	4-4
Enclosure Clearances .....	4-5
Enclosure Clearances .....	4-6
<b>Wiring Guidelines</b> .....	4-7
Providing Power to the <b>C-more</b> Micro Panel .....	4-7

## Safety Guidelines



**NOTE: Products with CE marks** perform their required functions safely and adhere to relevant standards as specified by CE directives provided they are used according to their intended purpose and that the instructions in this manual are adhered to. The protection provided by the equipment may be impaired if this equipment is used in a manner not specified in this manual. A listing of our international affiliates is available on our Web site: <http://www.automationdirect.com>

4



**Warning:** Providing a safe operating environment for personnel and equipment is your responsibility and should be your primary goal during system planning and installation. Automation systems can fail and may result in situations that can cause serious injury to personnel or damage to equipment. Do not rely on the automation system alone to provide a safe operating environment. You should use external electromechanical devices, such as relays or limit switches, that are independent of the PLC application to provide protection for any part of the system that may cause personal injury or damage. Every automation application is different, so there may be special requirements for your particular application. Make sure you follow all national, state, and local government requirements for the proper installation and use of your equipment.

### Plan for Safety

The best way to provide a safe operating environment is to make personnel and equipment safety part of the planning process. You should examine every aspect of the system to determine which areas are critical to operator or machine safety. If you are not familiar with control system installation practices, or your company does not have established installation guidelines, you should obtain additional information from the following sources.

- NEMA — The National Electrical Manufacturers Association, located in Washington, D.C. publishes many different documents that discuss standards for industrial control systems. You can order these publications directly from NEMA. Some of these include:
  - ICS 1, General Standards for Industrial Control and Systems
  - ICS 3, Industrial Systems
  - ICS 6, Enclosures for Industrial Control Systems
- NEC — The National Electrical Code provides regulations concerning the installation and use of various types of electrical equipment. Copies of the NEC Handbook can often be obtained from your local electrical equipment distributor or your local library.
- Local and State Agencies — many local governments and state governments have additional requirements above and beyond those described in the NEC Handbook. Check with your local Electrical Inspector or Fire Marshall office for information.



## Introduction

The installation and wiring of the *C-more* Micro panels requires selecting an appropriate location for the touch panel, positioning the cutout dimensions on the surface of the control cabinet that the panel will be mounted through, securing the touch panel with the provided mounting clips, tightening the screws to the appropriate torque rating to assure the gasket is sealing correctly, and finally connecting the appropriate power source to the touch panel.

This chapter covers the proper mounting of the touch panel and connecting power. Once power is applied to the touch panel, the user will want to read Chapter 5 on the System Setup Screens in order to become familiar with the touch panel test features and check memory options.

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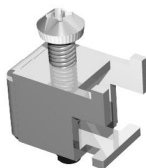
### Mounting Clips - EA-MG-S3ML-BRK

Models EA3-S3ML-RN, EA3-S3ML-R, EA3-S3ML and EA3-T4CL use EA-MG-S3ML-BRK mounting clips. Included with the panel are two clips for mounting.



### Mounting Clips - EA-MG-BZ2-BRK

Model EA3-T6CL uses EA-MG-BZ2-BRK mounting clips. Included with the panel are four clips for mounting.



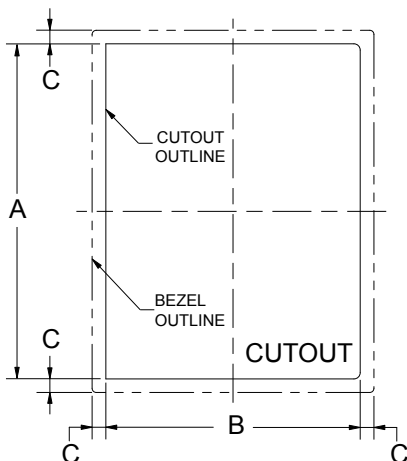
### Mounting Clips - EA3-BRK

Models EA3-T8CL and EA3-T10CL use EA3-BRK mounting clips. EA3-T8CL includes four clips for mounting. EA3-T10CL includes eight mounting clips.

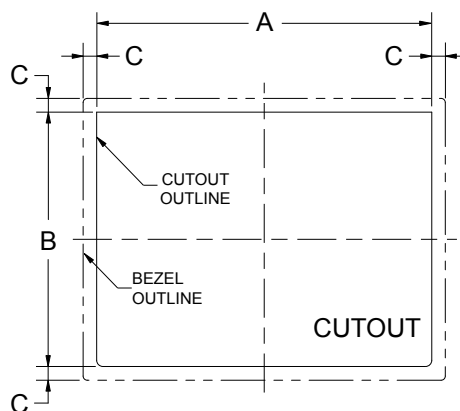


## Panel Cutout Dimensions

The **C-more** EA3 Series Micro panels are mounted into a cutout through the control cabinet and secured with mounting clips. Four clips are used to mount models EA3-T6CL and EA3-T8CL and eight clips are used with EA3-T10CL. There are slots on each side of the panel's long dimension that the two tabs on each mounting clip will match. The mounting clips are held in place by inserting the tabs into the "T" shaped holes (slots) and then moving the mounting clip toward the rear of the panel to keep it in place. Next tighten the mounting clip screws to pull the rear of the panel's bezel to the control cabinet's mounting surface. The screws need to be tightened to the torque rating shown in the illustration below so that the gasket is compressed to form the proper seal between the panel and cabinet surface.



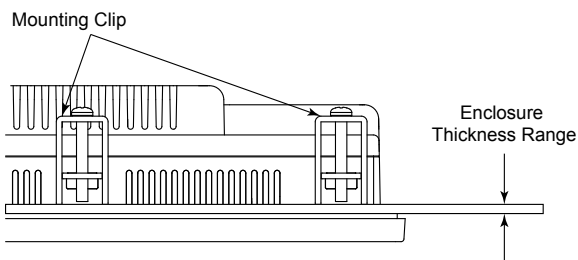
**Landscape Mode (Horizontal)**



**Portrait Mode (Vertical)**

Cutout Dimensions inches [mm]							
	EA3-S3ML-RN	EA3-S3ML-R	EA3-S3ML	EA3-T4CL	EA3-T6CL	EA3-T8CL	EA3-T10CL
A	4.02 [102.0]	4.02 [102.0]	4.02 [102.0]	4.02 [102.0]	6.34 [161.0]	9.25 [235.0]	11.91 [302.5]
B	2.76 [70.0]	2.76 [70.0]	2.76 [70.0]	2.76 [70.0]	4.81 [122.2]	7.07 [179.6]	8.92 [226.6]
C	0.24 [6.0]	0.24 [6.0]	0.24 [6.0]	0.36 [9.2]	0.26 [6.6]	0.31 [7.9]	0.31 [7.9]

The enclosure mounting thickness range for the panels is 0.04"–0.2" [1–5 mm].

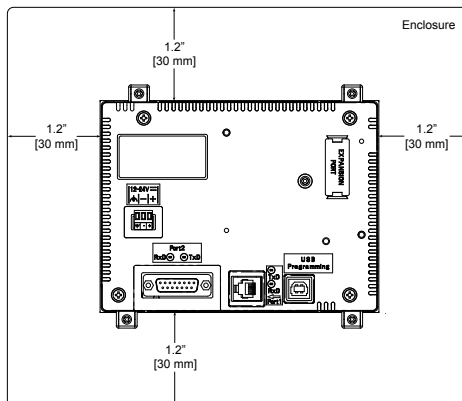


Mounting Screw Tightening Torque	
EA3-S3ML-RN	21 - 28 oz-in (0.15 - 0.20 N·m)
EA3-S3ML-R	
EA3-S3ML	
EA3-T4CL	
EA3-T6CL	63 - 77 oz-in (0.45 - 0.55 N·m)
EA3-T8CL	
EA3-T10CL	

## Enclosure Clearances

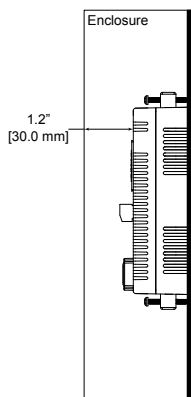
EA3-S3ML-RN, EA3-S3ML-R, EA3-S3ML, EA3-T4CL and EA3-T6CL

In all installations, 1.2" [30.0 mm] minimum clearance is required inside an enclosure for proper ventilation of *C-more* Micro panels.



**Rear View**

A 1.2" [30.0 mm] minimum clearance is required at the rear of a panel for proper ventilation of *C-more* Micro panels.

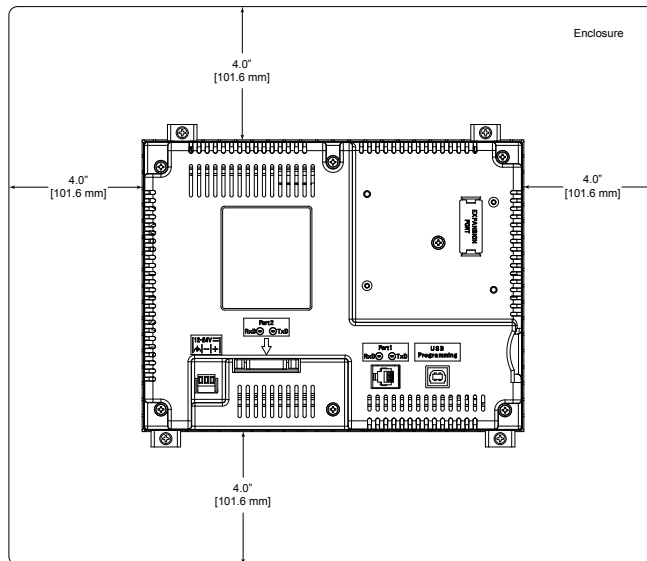


**Side View**

## Enclosure Clearances

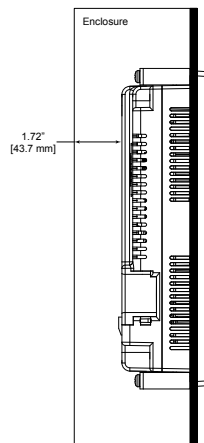
### EA3-T8CL and EA3-T10CL

In all installations, 4.0" [101.6 mm] minimum clearance is required inside an enclosure for proper ventilation of 8-inch and 10-inch **C-more** Micro panels.



### Rear View

1.72" [43.7 mm] minimum clearance is required at the rear of a panel for proper ventilation of 8-inch and 10-inch **C-more** Micro panels.



### Side View

## Wiring Guidelines



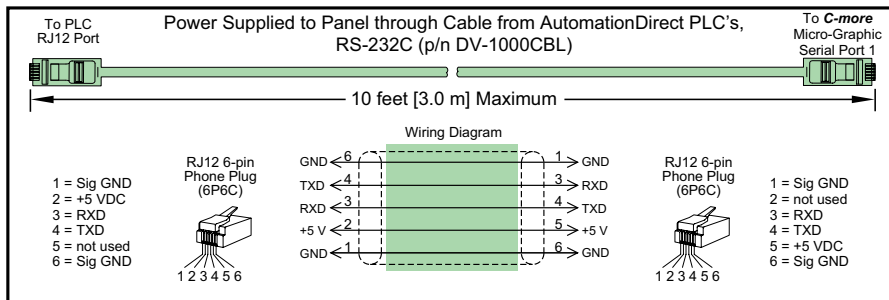
**Warning:** To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area and it is your responsibility to determine which codes should be followed, and to verify that the equipment, installation, and operation are in compliance with the latest revision of these codes. Equipment damage or serious injury to personnel can result from the failure to follow all applicable codes and standards. We do not guarantee the products described in this publication are suitable for your particular application, nor do we assume any responsibility for your product design, installation, or operation.

If you have any questions concerning the installation or operation of this equipment, or if you need additional information, please call us at 1-800-633-0405 or 770-844-4200. This publication is based on information that was available at the time it was printed. At Automationdirect.com® we constantly strive to improve our products and services, so we reserve the right to make changes to the products and/or publications at any time without notice and without obligation. This publication may also discuss features that may not be available in certain revisions of the product.

### Providing Power to the *C-more* Micro Panel

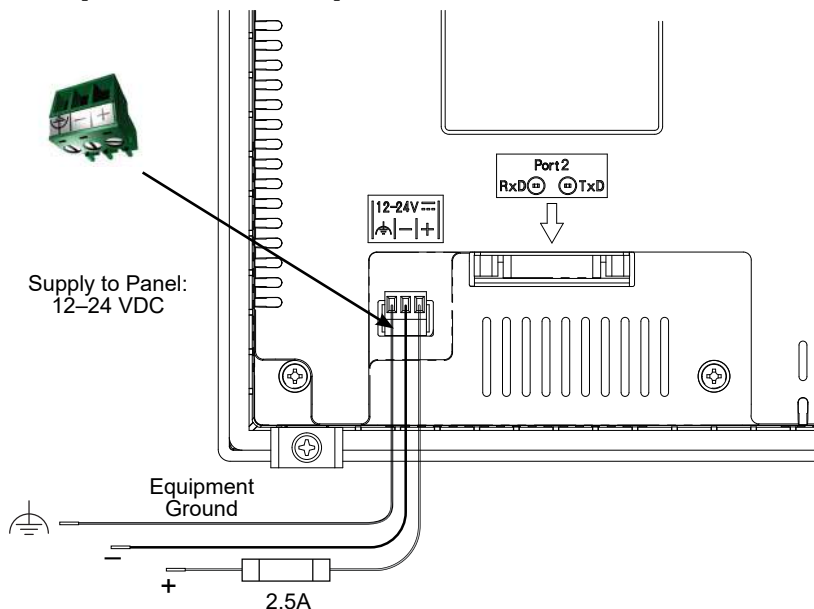
#### EA3-S3ML-RN and EA3-S3ML-R

- EA3-S3ML-RN and EA3-S3ML-R *C-more* Micro panels are powered during programming from the PC through the USB to RS-232 Programming Cable Assembly, EA-MG-PGM-CBL.
- During operation, EA3-S3ML-RN and EA3-S3ML-R *C-more* Micro panels can be powered from most AutomationDirect PLC's RJ12 serial communications port by using a DV-1000CBL communications cable, or a DV-1000CBL communications cable with a FA-15HD 15-pin HD DSub/RJ12 Adapter connected to a *DirectLOGIC* PLC's 15-pin HD communications port (DL06, D2-250-1 & D2-260) PLCs. See **Chapter 6: PLC Communications** for additional details.



**EA3-S3ML, EA3-T4CL, EA3-T6CL, EA3-T8CL and EA3-T10CL**

EA3-S3ML, EA3-T4CL, EA3-T6CL, EA3-T8CL and EA3-T10CL panels are powered by a 2.5 Amp @ 12-24 VDC class 2 power source .

**Required Wire Specification**

Supported temperature	Over 60 °C
Wire Material	Copper
Wire Size	16 - 22 AWG

**Tightening Torque**

Power supply wire connection	1.7 lb-in (0.2 Nm)
------------------------------	--------------------

**Recommended Power Supply**

Part Number	Power	Power Supply
EA3-S3ML-RN	N/A	N/A
EA3-S3ML-R	N/A	N/A
EA3-S3ML	3W	PSL-24-010
EA3-T4CL	4W	
EA3-T6CL	7.5 W	
EA3-T8CL	8W	
EA3-T10CL	10W	PSC-24-015



**WARNING:** Using a differential power supply and connection the USB to a PC can damage both the panel and the PC.

# SYSTEM SETUP SCREENS

# CHAPTER 5

## In this Chapter...

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<b>System Setup Screens Flowchart .....</b>	<b>5-4</b>
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## Introduction

The **C-more®** Micro panels include a series of built-in System Setup Screens that allow the user to view detailed information about the panel, adjust features, test various functions of the panel, clear memory, and reset all values and conditions back to the original factory defaults.

The following is presented to give the user a detailed step by step look at:

- How to access the System Setup Screens
- What adjustments and features are available
- When and why the feature may need to be adjusted or used
- How to adjust and/or interrupt the features

The System Setup Screens are split into three categories to make it easy for the user to view information, make adjustments, or test the panel. The three Setup Menu selections are:

### Information

Here you will find the panel model number, detailed information about the panel's available memory and usage, the protocol being used by the panel, and version information for the firmware and boot loader.

### Setting

This is the area for adjusting the brightness of the display, enabling or disabling the internal beeper, calibrating the touch panel, clearing the user memory, resetting all of the settings back to the factory defaults, and setting the loading screen hourglass icon delay time or disabling the display of the hourglass icon.

The Setting factory default values are:

- Brightness value of 10
- The internal audible beeper enabled
- Forced touch panel calibration
- User program cleared from memory
- Hourglass icon delay of 350 ms.
- Horizontal display area orientation

### Test Menu

The test menu includes options to initiate communication tests of the serial port, to test communications with the PLC, to test operation of the panel's beeper and to test the touch panel surface. Refer to the serial port loop back test section of this chapter for details on loop back connector wiring.



## Accessing the System Setup Screens

To access the **Setup Menu** of the panel **System Setup Screens**, press the panel's BAK [F1] and ENT [F5] function keys simultaneously for three (3) seconds as shown below.

For EA3-T4CL, touch the upper left corner of the screen for three seconds.

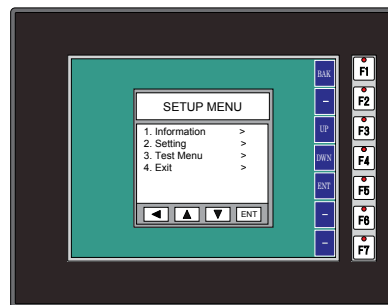
The **System Setup Screens' Setup Menu** will be displayed as shown at the bottom of this page.



5

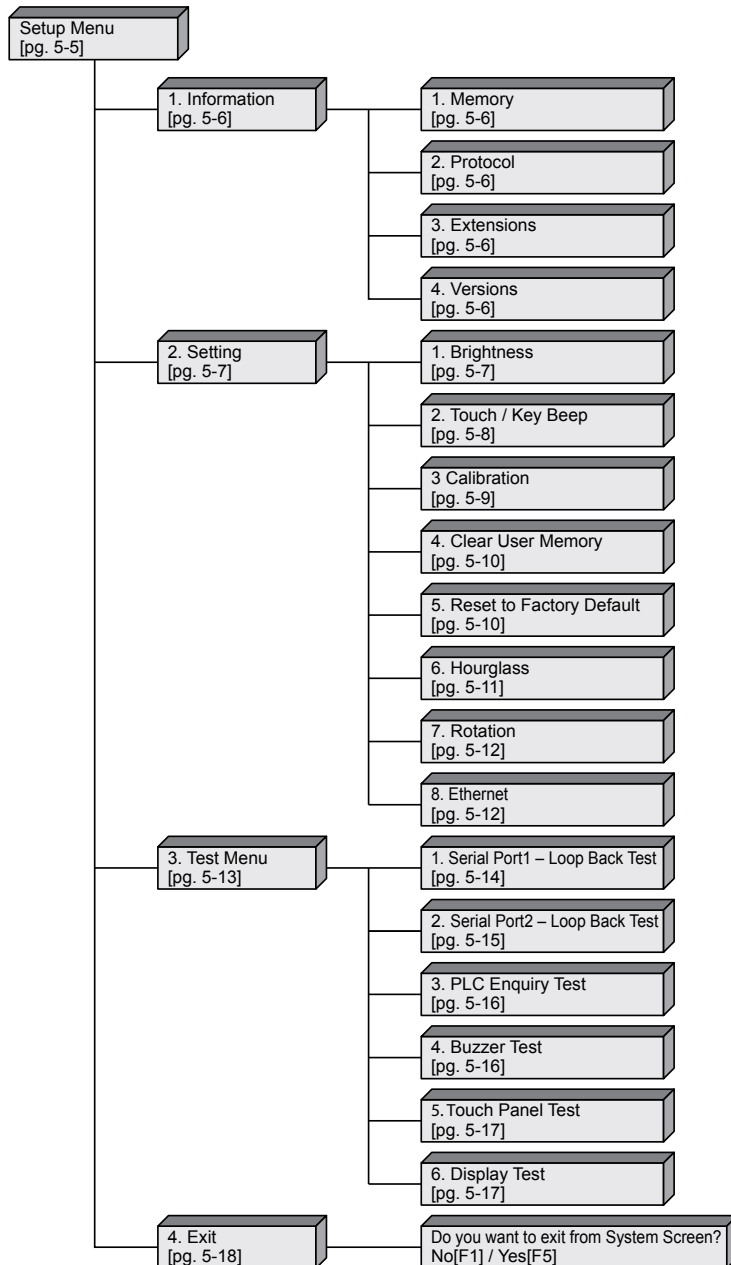


**EA3 Series  
Portrait Mode**



**EA3 Series  
Landscape Mode**

# System Setup Screens Flowchart



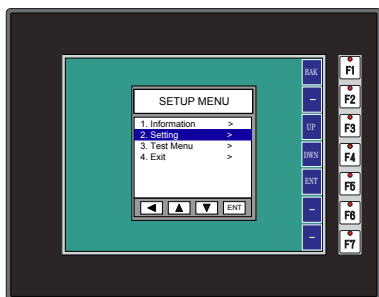
## Setup Menu



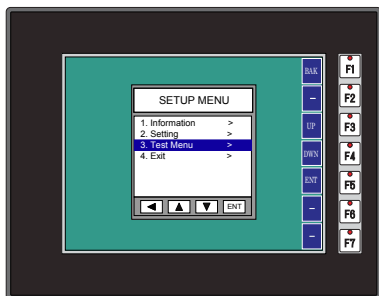
To navigate the different selections under the Setup Menu, use the function keys BAK [F1] to return to the project screen or previous screen, UP [F3] to cursor up, DWN [F4] to cursor down, and ENT [F5] to enter a selection.

Pressing ENT [F5] with **Information** highlighted will take you to the **Information** menu screen. See page 5-6.

5



Pressing ENT [F5] with **Setting** highlighted will take you to the **Setting** menu screen. See page 5-7.



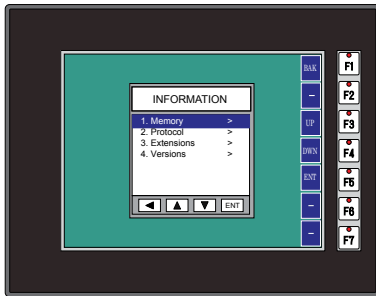
Pressing ENT [F5] with **Test Menu** highlighted will take you to the **Test Menu** screen. See page 5-15.



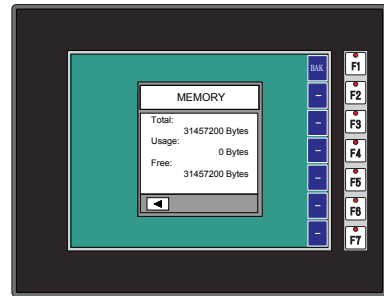
Pressing ENT [F5] with **Exit** highlighted will allow the user to decide whether to **Exit** or not **Exit** the System Setup Screens. See page 5-18.

## Information Menu

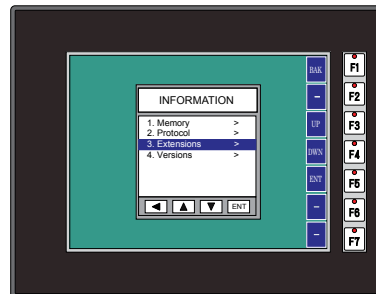
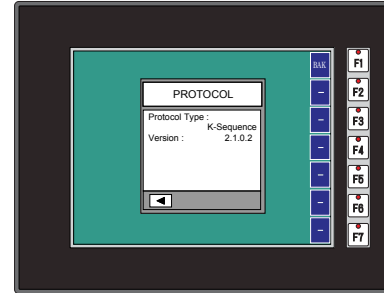
5



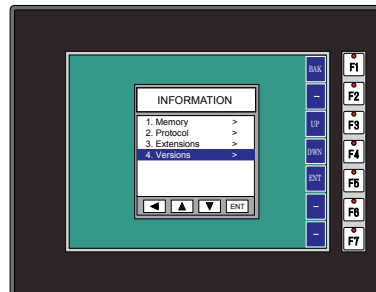
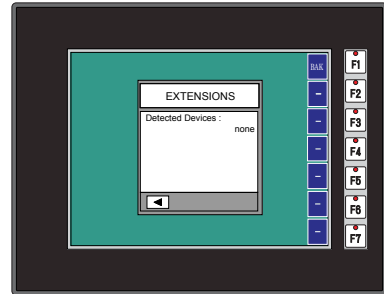
Pressing ENT [F5] with **Memory** highlighted will show the total memory available, memory usage and free memory available for the project.



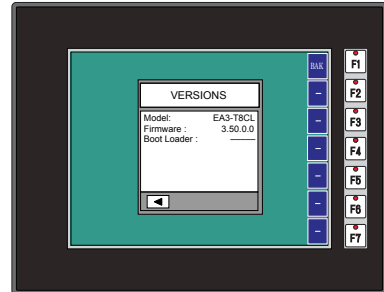
Pressing ENT [F5] with **Protocol** highlighted will show the PLC Protocol that has been assigned to the panel and the protocol version.



EA3 series panels currently do not have **Extensions** available. Pressing ENT [F5] with **Extensions** highlighted will show none.



Pressing ENT [F5] with **Versions** highlighted will show the panel model, firmware and boot loader versions.



## Setting Menu



Use the UP [F3] and DWN [F4] function keys to scroll through the list of settings. The BAK [F1] function key will return you to the previous screen. Use the ENT [F5] function key to make your selection once you have the setting highlighted.

The Setting screen includes the following:

**Brightness** – page 5-7

**Touch/Key Beep** – page 5-8

**Calibration** – page 5-9

**Clear User Memory** – page 5-10

**Reset to Factory Default** – page 5-10

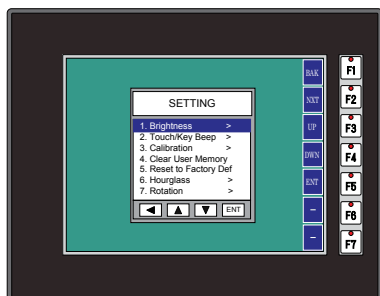
**Hourglass** – page 5-11

**Rotation** – page 5-12

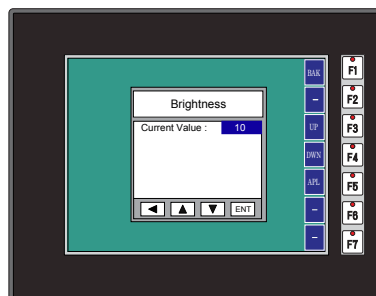
**Emulation** – page 5-12

**Ethernet** – page 5-13

### Setting – Brightness

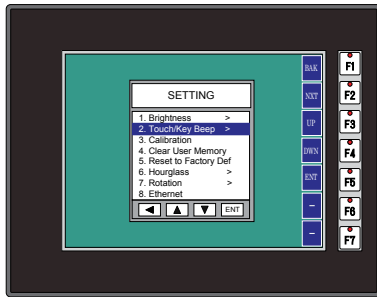


With **Brightness** highlighted, press ENT [F5] to bring up the screen showing the current value. The default is 10. The contrast can be adjusted between 1 and 16, with 1 being the least contrast and 16 being the greatest.

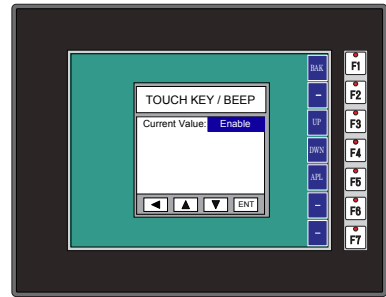


**NOTE:** On EA3-S3ML-RN, EA3-S3ML-R and EA3-S3ML this is the Contrast setting.

## Setting – Touch/Key Beep



With **Touch/Key Beep** highlighted, press ENT [F5] to show the current value for the internal beeper. The default is **ON**. The UP [F3] and DWN [F4] function keys can be used to toggle between the ON and OFF state for the beeper (enable or disable). Use the APL [F5] function key to apply the selection.

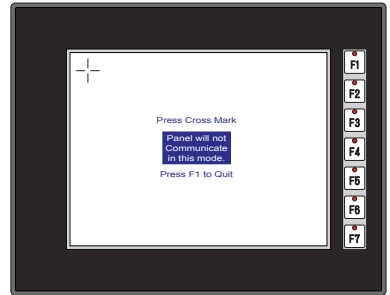
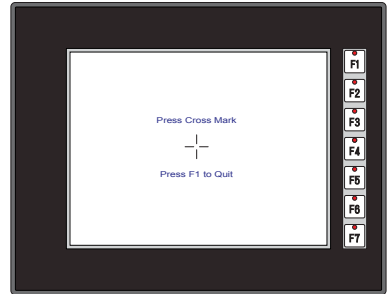
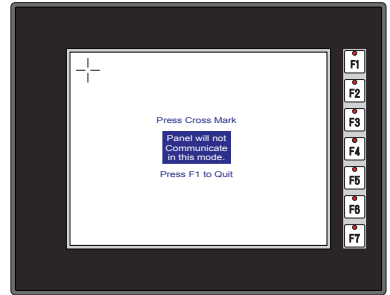


**NOTE:** Loading a project to the panel will override whatever selection is chosen for the beeper from the System Setup Screens' Beep on/off selection screen. The Beep on/off choice can be changed through the System Setup Screens **after** a project is loaded.

## Setting – Calibration

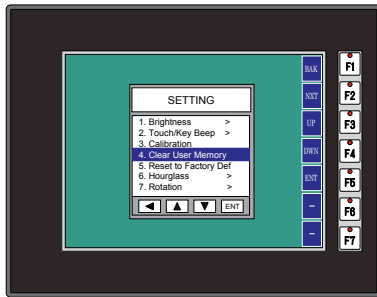


With **Calibration** highlighted, press ENT [F5] to bring up the first calibration screen as shown on the right. Touch the “cross” in the upper left corner as accurately as you can. When the screen is touched, the cross will move to each corner and finally to the center of the screen. If the touch points are within the built-in calibration tolerance, the final screen will allow you to either save and quit from the calibration procedure, or allow you to retry. If the points that were touched are not within the calibration tolerance, you will be returned to the first calibration screen and will need to start over.



**NOTE:** Calibration is not available on Non-Touch panels.

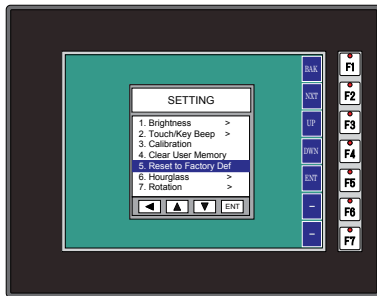
## Setting – Clear User Memory



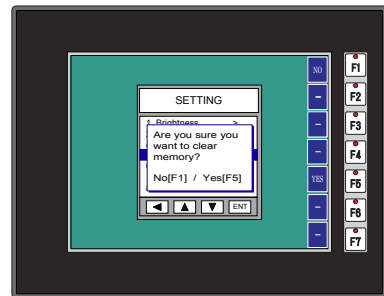
With **Clear User Memory** highlighted, press ENT [F5]. You will be given the choice to either proceed with clearing the user memory by pressing [F5] for YES or allowed to cancel by pressing [F1] for NO.



## Setting – Reset to Factory Default



With **Reset to Factory Default** highlighted, press ENT [F5]. Press [F5] to restore all settings to factory defaults and clear user memory. Press [F1] to cancel.



Factory default values can also be reset by pressing F2 and F4 while cycling power to the panel.

The Factory Default values are:

- Brightness value of 10
- The internal audible beeper enabled
- Forced touch panel calibration
- User program cleared from memory
- Hourglass icon delay of 350 ms.
- Horizontal orientation



**NOTE:** User memory is cleared when factory defaults are reset. Use the **C-more Micro** programming software to read the program from the panel and save a backup copy.



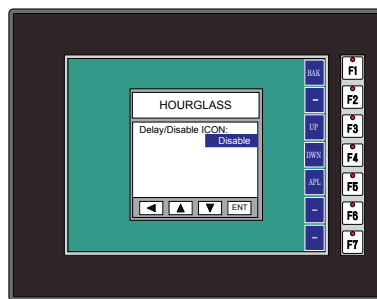
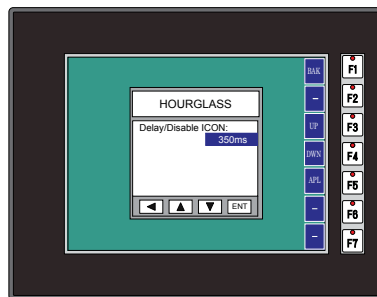
## Setting – Hourglass



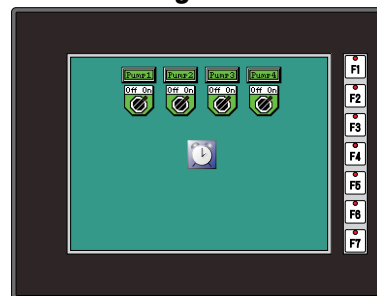
The **Hourglass** selection listed under the **Setting** menu can be used to either disable the display of the hourglass icon or set the amount of delay time (0 ms to 1000 ms) desired before it is displayed.

With **Hourglass** highlighted, press ENT [F5]. The UP [F3] and DWN [F4] function keys scroll through the selections. Use the APL [F5] function key to apply the selection.

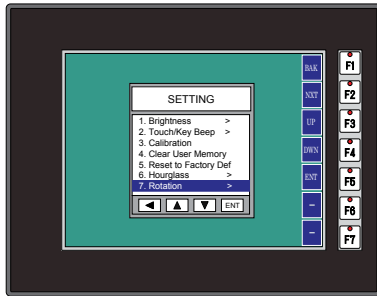
**Explanation:** An hourglass icon is displayed on the panel anytime a new screen is being loaded until communication is established with the new screen. If communication is established before the delay has timed out, no hourglass will be displayed. The hourglass icon can also be disabled from being displayed.



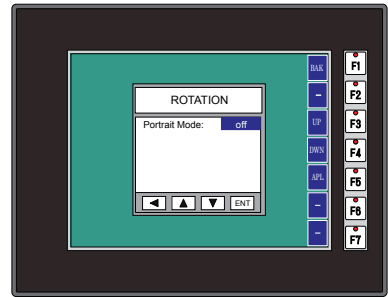
## Hourglass Icon



## Setting – Rotation

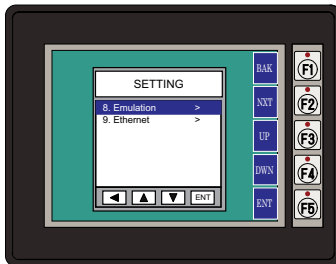


With **Rotation** highlighted, press ENT [F5] to show the current orientation. Press UP [F3] and DWN [F4] to toggle between the portrait (vertical) and landscape (horizontal) orientation. Use the APL [F5] function button to apply the selection. The Rotation setting is not available on EA3-S3ML-RN, EA3-S3ML-R and EA3-S3ML.

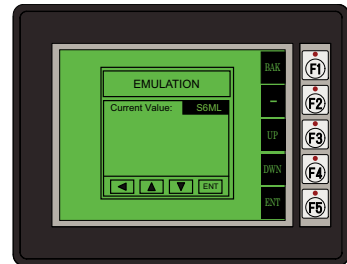


**NOTE:** Loading a project to the panel will override the orientation chosen from the System Setup Screens' Rotation selection screen. The selected orientation is displayed only when in the System Setup Screens.

## Setting – Emulation



With **Emulation** highlighted, press ENT[F5] to show the Emulation Settings. Press UP [F3] and DWN [F4] to toggle between the different models that may be emulated on the present panel. Use the APL [F5] function button to apply the selection. The Emulation setting is available on EA3-S3ML-RN, EA3-S3ML-R, EA3-S3ML and EA3-T6CL panels.

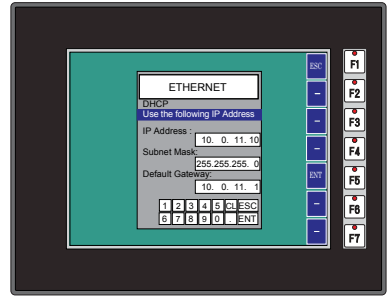


**NOTE:** The Emulation setting is not retentative when a project is downloaded to the panel.

## Setting – Ethernet

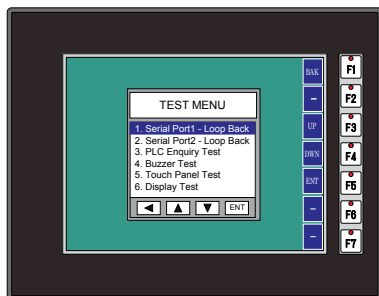


With **Ethernet** highlighted, press ENT[F5] to show the Ethernet Settings. The default is DHCP. Select **Use the following IP Address** to manually enter the IP Address, Subnet Mask and Default Server.



**NOTE:** Ethernet settings only apply to panels with built-in Ethernet or panels using an EA-ECOM Ethernet Module.

## Test Menu



Use the UP [F3] and DWN [F4] function keys to scroll through the list of tests. The BAK [F1] function key will return you to the previous screen. Use the ENT [F5] function key to make your selection once you have the test highlighted.

**Serial Port1 - Loop Back Test** – page 5-14

**Serial Port2 - Loop Back Test** – page 5-15

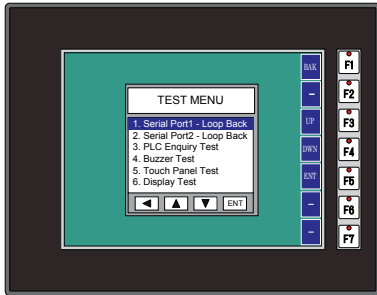
**PLC Enquiry Test** – page 5-16

**Buzzer Test** – page 5-16

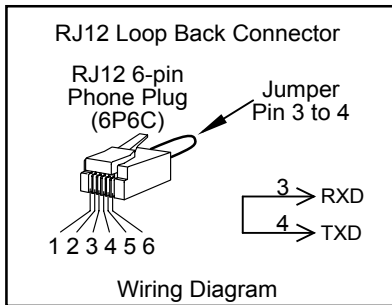
**Touch Panel Test** – page 5-17

**Display Test** – page 5-17

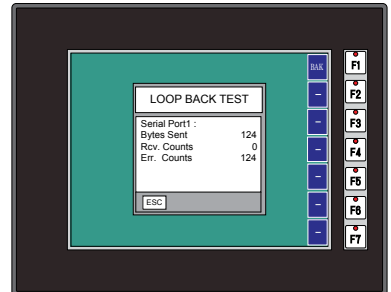
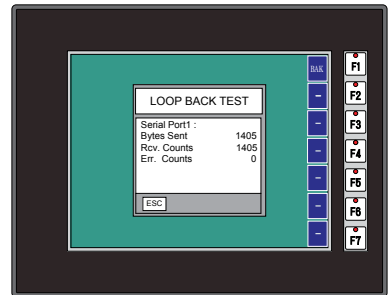
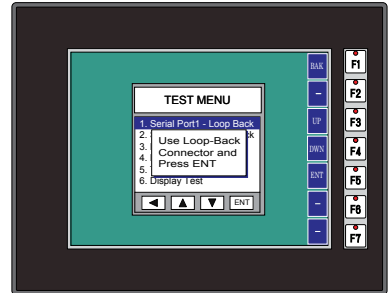
## Test Menu - Serial Port1 - Loop Back Test



With **Serial Port1 - Loop Back Test** highlighted, press ENT [F5] to bring up the screen shown to the right. At this point, connect the RS-232 loop back connector and press ENT [F5] to start the test. If the test is passing, the **Receive Counts** will equal the **Bytes Sent**.



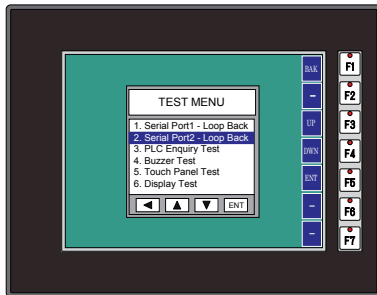
If the serial port is not working, then the **Error Counts** will equal the **Bytes Sent**. The RTS/CTS signals will display **fail**. The test will continue until the BAK [F1] key is pressed.



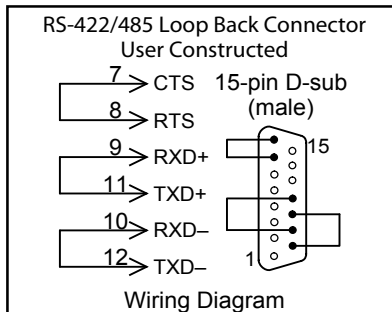
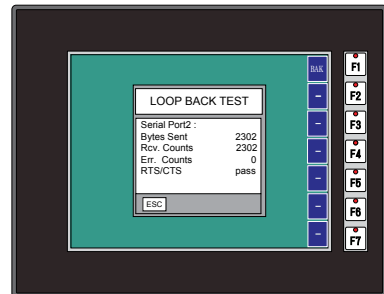
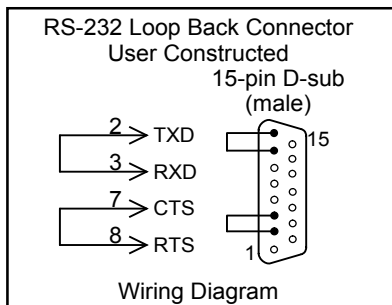
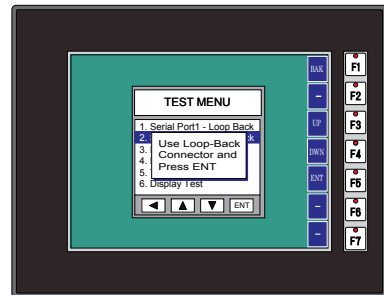
5

## Test Menu - Serial Port2 - Loop Back Test

5

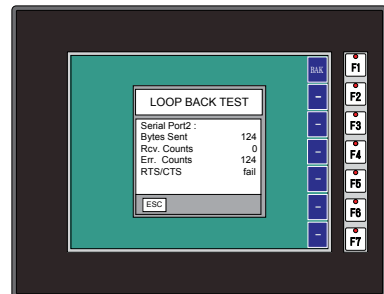


With **Serial Port2 - Loop Back Test** highlighted, press ENT [F5] to bring up the screen shown to the right. At this point, either connect the RS-232 loop back connector or the RS-422/485 loop back connector, depending on which type of communications connection is being used, and press ENT [F5] to start the test. If the test is passing, the **Receive Counts** will equal the **Bytes Sent**.

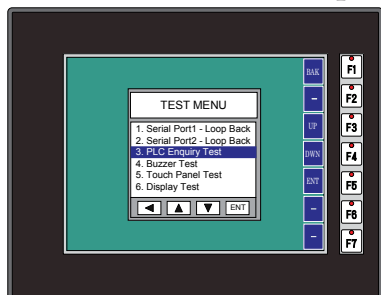


If the serial port is not working, then the **Error Counts** will equal the **Bytes Sent**. The **RTS/CTS** signals will also display fail. The test will continue until the BAK [F1] key is pressed. Setting – Clear User Memory

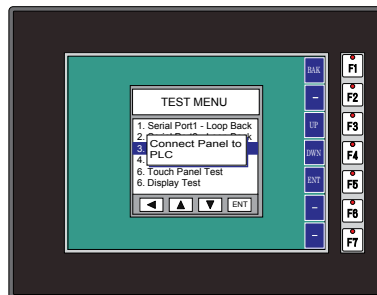
With **Clear User Memory** highlighted, press ENT [F5]. You will be given the choice to either proceed with clearing the user memory by pressing [F5] for YES or allowed to cancel by pressing [F1] for NO.



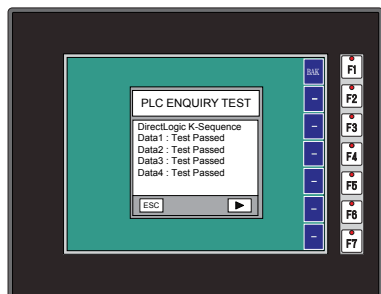
## Test Menu – PLC Enquiry Test



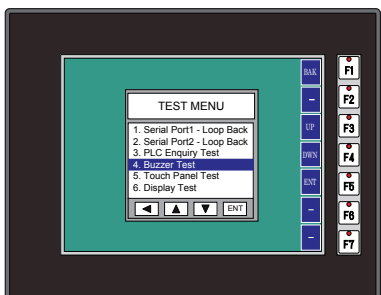
With **PLC Enquiry Test** highlighted, press ENT [F5] to bring up the screen shown to the right. If the PLC is connected to the panel, press ENT [F5] to start the test. Four data tests will be performed and indicated as either **Test Passed** or **Test Failed** as shown on this page. The BAK [F1] key can be pressed to cancel the test and/or returned to the previous screen.



5



## Test Menu – Buzzer Test

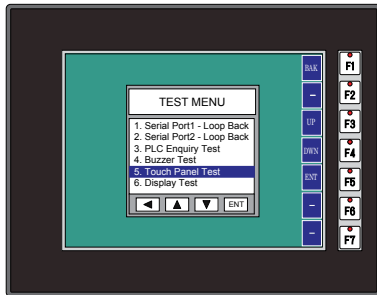


With **Buzzer Test** selection highlighted, press ENT [F5] to run the test on the internal audible beeper. The beeper will sequence up the scale through eight notes and then start over. The BAK [F1] key can be pressed to cancel the test.

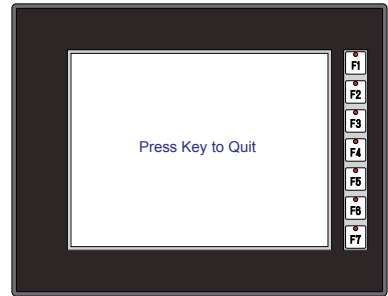


**NOTE:** The beeper tone is not selectable. The beeper function can not be turned on or off from this screen, refer to the Setting menu.

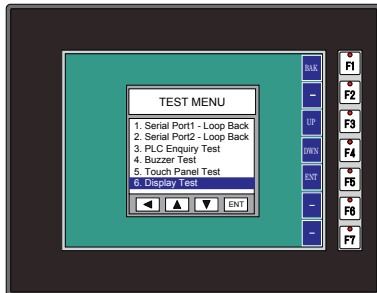
## Test Menu - Touch Panel Test



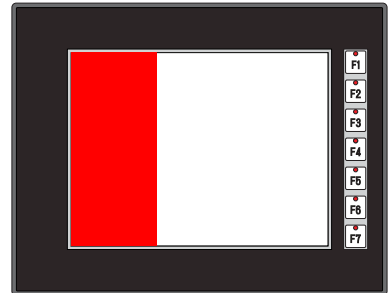
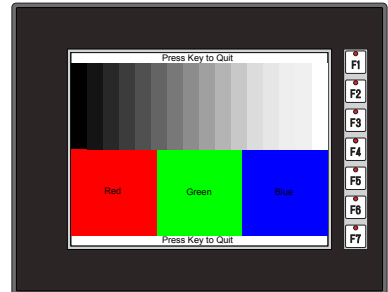
With **Touch Panel Test** highlighted, press ENT [F5] to bring up the screen shown to the right. Touch any area of the screen to visualize the active area of the touch panel screen. If the touch panel area is working properly, the screen will blacken at the area touched. Use this test to identify any area that is not responding properly. Press any key [F1 to F5] to return to the Test Menu.



## Test Menu - Display Test

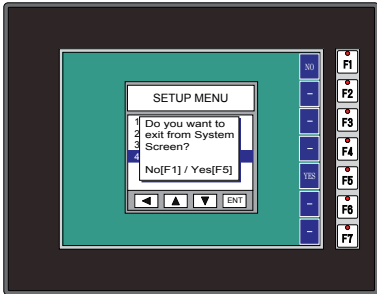


With **Display Test** highlighted, press ENT [F5] to bring up the screen shown to the right. After a few seconds a scrolling RGB color test will begin. Use this test to identify any area that is displaying colors incorrectly. Press any key [F1 to F5] to return to the Test Menu.

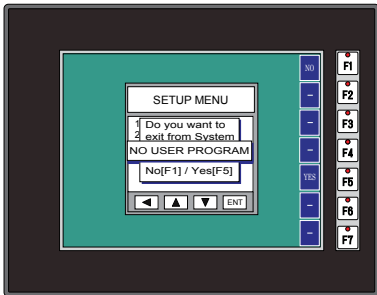




## Exit



With **Exit** highlighted, press ENT [F5] to bring up the screen shown to the left. You will be given the choice to either proceed with exiting the **System Setup Screens** by pressing [F5] for YES or allowed to cancel by pressing [F1] for NO. You will be returned to the project screen if answering YES.



If there is no user program loaded into the panel, then a **NO USER PROGRAM** message as shown to the left will be displayed.





# PLC COMMUNICATIONS

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# CHAPTER 6

## In this Chapter...

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## Introduction

The **C-more®** Micro panels are capable of communicating with AutomationDirect Productivity Series, Do-more, BRX, CLICK, SOLO, GS Drives and the entire **DirectLOGIC** family of PLCs. The panel is capable of communicating using RS232 on the RJ12 Port1 and RS232, RS422 or RS485 on Port2. The EA3-S3ML and EA3-4TCL have a built-in Ethernet RJ45 port capable of communicating with all AutomationDirect PLC's and Modbus slave devices. Adding the optional EA-ECOM module to the EA3 series 6, 8 and 10-inch models also allows communications via an Ethernet connection with a Cat5e cable.

6

Cable Description	Cable Part No.	Cable Description	Cable Part No.
<b>Cables used with RJ12 RS-232 serial Port1</b>		<b>Cables used with 15-pin RS-232/422/485 serial Port2</b>	
AutomationDirect Productivity Series, Do-more / BRX*, CLICK, <b>Direct</b> LOGIC PLC RJ-12 port, DL05, DL06, DL105, DL205, D3-350, D4-450, D4-454 & H2-WinPLC (RS-232C). 3.66m (12ft) cable length	<b>DV-1000CBL</b>	AutomationDirect Productivity Series, Do-more / BRX*, CLICK, <b>Direct</b> LOGIC PLC RJ-12 port, DL05, DL06, DL105, DL205, D3-350, D4-450, D4-454 & H2-WinPLC (RS-232C) 3m (9.8 ft) cable length	<b>EA-2CBL</b>
<b>Direct</b> LOGIC (VGA Style) 15-pin port, DL06, D2-250 (250-1), D2-260 (RS-232C). Use with D0-CBL cable.	<b>FA-15HD</b>	<b>Direct</b> LOGIC (VGA Style) 15-pin port, DL06, D2-250 (250-1), D2-260 (RS-232C) 3m (9.8 ft) cable length	<b>EA-2CBL-1</b>
<b>Direct</b> LOGIC PLC 15-pin D-sub port, DL405 (RS-232C). Use with D0-CBL cable.	<b>FA-CABKIT</b>	<b>Direct</b> LOGIC PLC RJ-11 port, D3-340 (RS-232C) 3m (9.8 ft) cable length	<b>EA-3CBL</b>
<b>Direct</b> LOGIC PLC RJ-11 port, D3-340 (RS-232C) 2m (6.56 ft) cable length	<b>OP-3CBL-1</b>	<b>Direct</b> LOGIC DL405 PLC 15-pin D-sub port, DL405 (RS-232C) 3m (9.8 ft) cable length	<b>EA-4CBL-1</b>
<b>* BX-P-SER2-RJ12 is required</b>		<b>Direct</b> LOGIC PLC 25-pin D-sub port, DL405, D3-350, DL305 DCU and all DCM's (RS-232C) 3m (9.8 ft) cable length	<b>EA-4CBL-2</b>
		Allen-Bradley MicroLogix 1000, 1100, 1200, 1400 & 1500 (RS-232C) 3m (9.8 ft) cable length	<b>EA-MLOGIX-CBL</b>
		Allen-Bradley SLC 5-03/04/05, ControlLogix, CompactLogix, FlexLogix DF1 port (RS-232C) 3m (9.8 ft) cable length	<b>EA-SLC-232-CBL</b>
		Allen-Bradley PLC-5 DF1 port (RS-232C) 3m (9.8 ft) cable length	<b>EA-PLC5-232-CBL</b>
		Allen-Bradley SLC 5-01/02/03 DH485 port 3m (9.8 ft) cable length	<b>EA-DH485-CBL</b>
		GE 90/30, 90/70, Micro 90, Versamax Micro (Port2) 15-pin D-sub port (RS-422A) 3m (9.8 ft) cable length	<b>EA-90-30-CBL</b>
		MITSUBISHI FX Series 25-pin port (RS-422A) 3m (9.8 ft) cable length	<b>EA-MITSU-CBL</b>
		MITSUBISHI FX Series 8-pin mini-DIN (RS-422A) 3m (9.8 ft) cable length	<b>EA-MITSU-CBL-1</b>
		OMRON Host Link (C200 Adapter, C500) (RS-232C) 3m (9.8 ft) cable length	<b>EA-OMRON-CBL</b>
		<b>* BX-P-SER2-RJ12 is required</b>	

## Introduction (cont'd)

### Available PLC Protocols

PLC Drivers		
Serial - port1 or port2	Serial - port2 only	Ethernet*
AutomationDirect Productivity Series	Allen-Bradley DF1 Half Duplex	AutomationDirect Productivity Series Ethernet
	Allen-Bradley DF1 Full Duplex	
AutomationDirect Do-more / BRX**	Allen-Bradley PLC5 DF1	AutomationDirect Do-more / BRX Ethernet
AutomationDirect CLICK	Allen-Bradley DH485	AutomationDirect CLICK Ethernet
AutomationDirect K-sequence	GE SNPX (90/30, 90/70, Micro 90, VersaMax Micro)	AutomationDirect ECOM Ethernet
AutomationDirect DirectNET	Mitsubishi FX	Modbus TCP/IP
AutomationDirect Modbus (master only)	Mitsubishi Q & QnA	Allen-Bradley EtherNet / IP Client (MicroLogix 1100/1400)
Modicon Modbus RTU (master only)	Omron Host Link (C200 Adapter, C500)	
Entivity Modbus RTU (master only)	Omron FINS Serial (CJ1, CS1)	Allen-Bradley EtherNet / IP Client (SLC5 / 05 / ENI Adapter)
	Siemens PPI (S7-200 CPU)	
	AutomationDirect SOLO Temperature Controller	
	AutomationDirect GS Drives	
* Ethernet port is built in on EA3-S3ML and EA3-T4CL. Add an Ethernet port to EA3-T6CL, EA3-T8CL and EA3-T10CL with an optional EA-ECOM module. Ethernet communications require external power supply.		
** BX-P-SER2-RJ12 is required		

The panel can also be connected to more than one PLC by using RS-422, RS-485 or Ethernet connected in a multi-drop configuration. See the example wiring diagrams at the end of this chapter for details.

If you have difficulty determining whether the particular PLC and/or protocol you are using will work with **C-more** Micro panels, please contact our technical support group at 770-844-4200.

# Introduction (cont'd)

## Maximum Connected PLC Nodes



**NOTE:** The maximum number of protocols that can be used on the **C-more** Micro is four but depends on the connection; serial or Ethernet.

### Serial

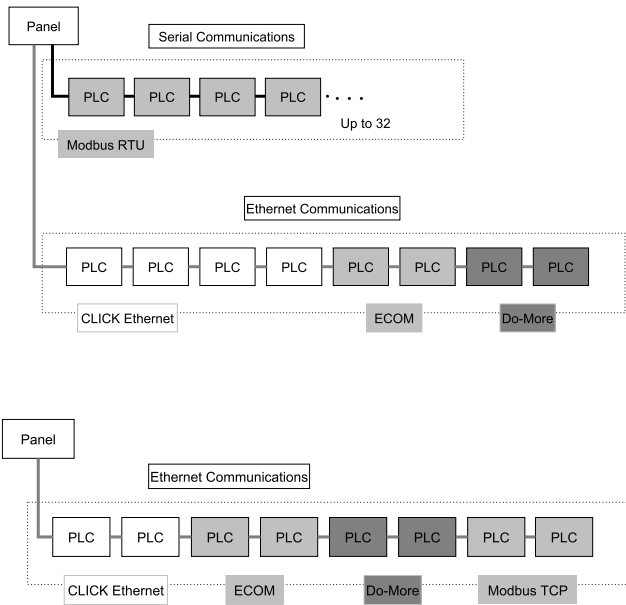
If connected serially, only one PLC protocol can be used. Up to 32 PLC's can be connected

### Ethernet

If connected over Ethernet, 4 PLC Protocols can be used. Up to 8 PLC's can be connected to the Ethernet network.

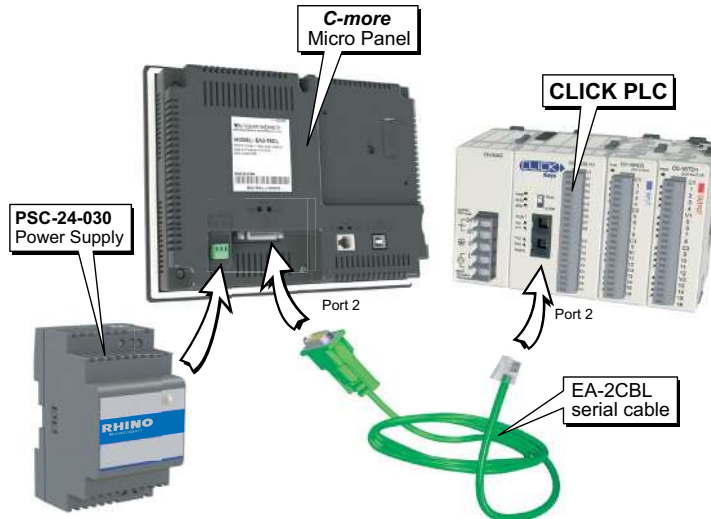
Maximum PLC Connections		
Connection Type	Protocols	PLC Nodes
Serial	1	32
with EA-ECOM	4	32 serial 8 Ethernet

### Examples:

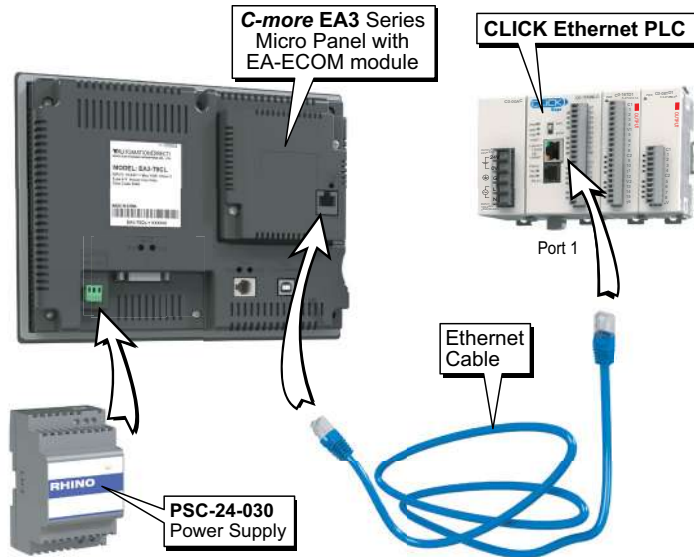


## C-more Micro Communication Ports

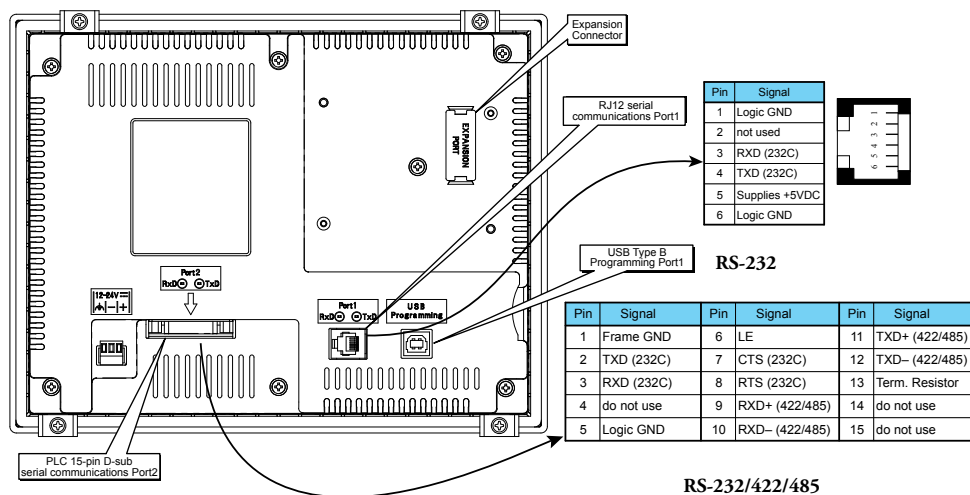
### Serial connection to a CLICK PLC example



### Ethernet connection to a CLICK PLC example



## C-more Micro Communication Ports (cont'd)



### DirectLOGIC PLCs Password Protection



**NOTE:** DirectLOGIC PLCs support multi-level password protection of the ladder program. This allows password protection while not locking the communication port to an operator interface. The multilevel password can be invoked by creating a password with an upper case "A" followed by any variation of seven numeric characters (e.g. A1234567). Please refer to the specific PLC user manual for further details.



## Cables from *AutomationDirect*



Part No. DV-1000CBL



Part No. OP-3CBL-1



Part No. FA-15HD



Part No. EA-2CBL



Part No. EA-2CBL-1



Part No. FA-CABKIT



Part No. EA-4CBL-1



Part No. EA-4CBL-2



Part No. EA-3CBL

## Cables from *AutomationDirect* (cont'd)



Part No. EA-MLOGIX-CBL



Part No. EA-SLC-232-CBL



Part No. EA-PLC5-232-CBL

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Part No. EA-DH485-CBL



Part No. EA-90-30-CBL



Part No. EA-MITSU-CBL



Part No. EA-MITSU-CBL-1



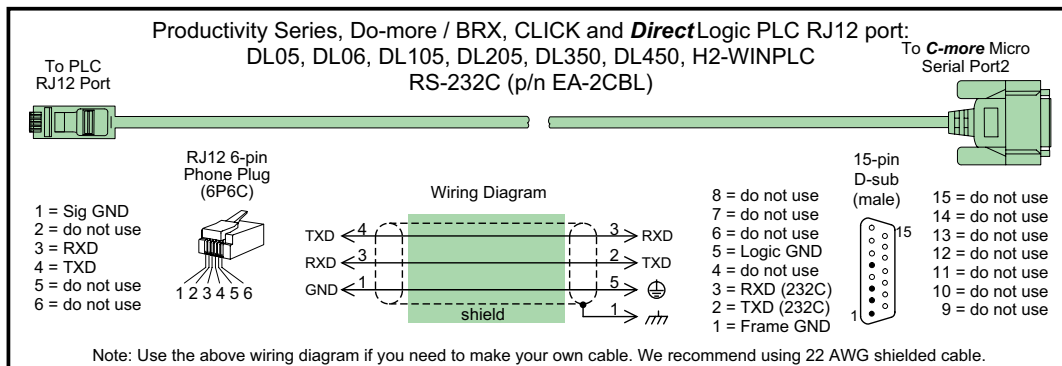
Part No. EA-OMRON-CBL

## Cables from AutomationDirect – Wiring Diagrams

The following series of wiring diagrams show the connectors and wiring details for the communication cables that are used between the **C-more** Micro panels and various PLCs. Part numbers are included with the pre-made cables that can be purchased from **AutomationDirect**. The information presented will allow the user to construct their own cables if so desired.

### CLICK and DirectLOGIC:

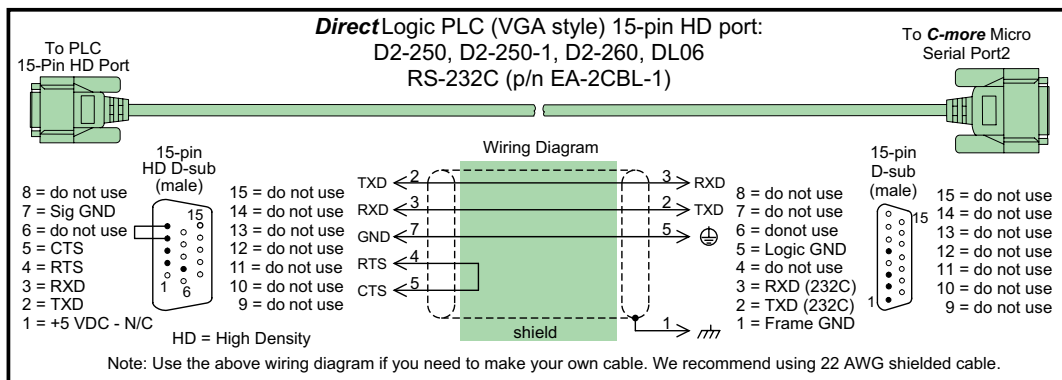
**EA-2CBL**



6

### DirectLOGIC:

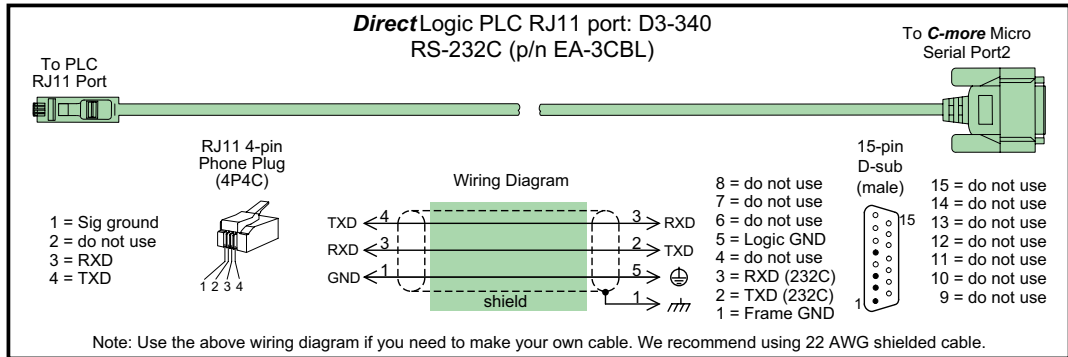
**EA-2CBL-1**



## Cables from AutomationDirect – Wiring Diagrams (cont'd)

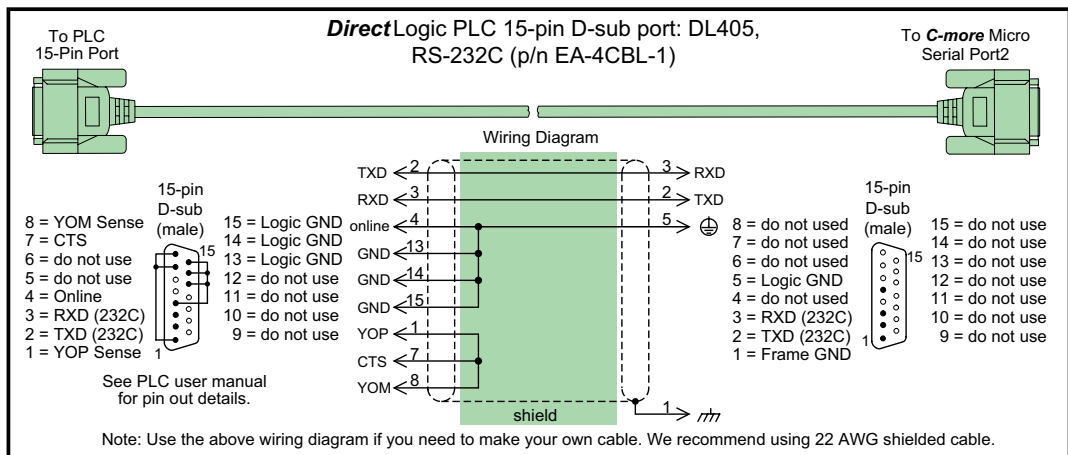
### DirectLOGIC:

### EA-3CBL



### DirectLOGIC:

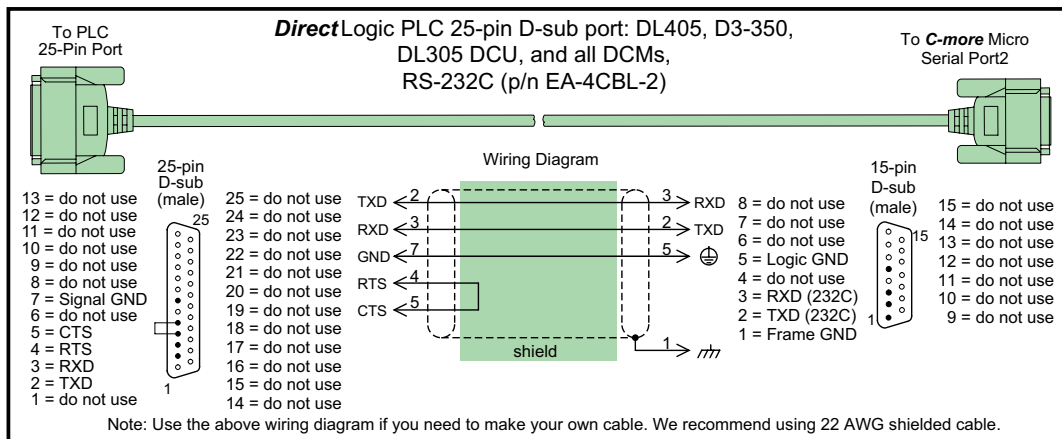
### EA-4CBL-1



# Cables from AutomationDirect – Wiring Diagrams (cont'd)

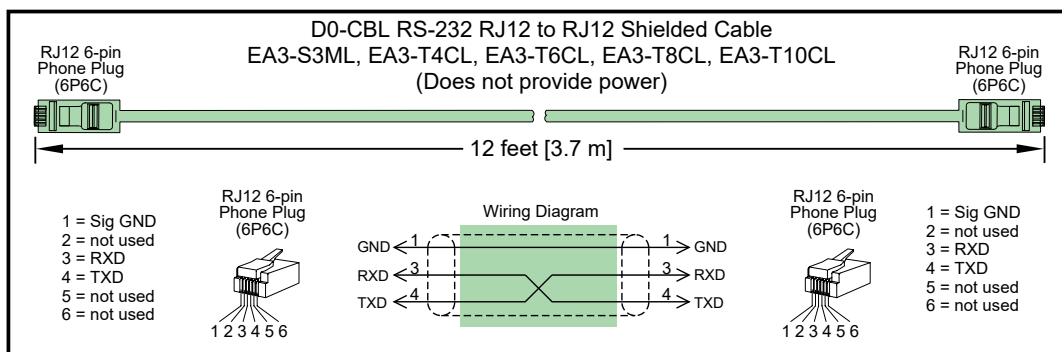
## DirectLOGIC:

## EA-4CBL-2



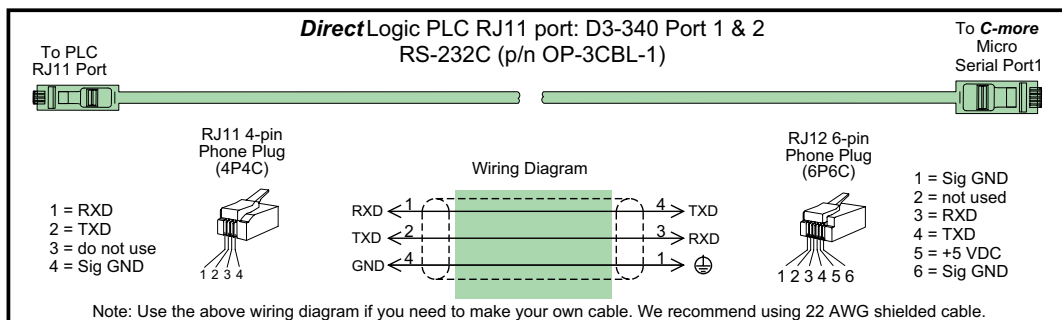
## AutomationDirect Controllers

## D0-CBL



## DirectLOGIC:

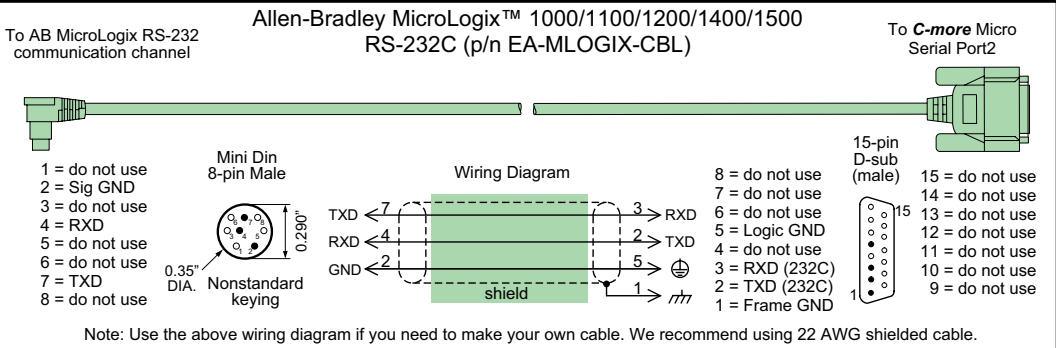
## OP-3CBL-1



# Cables from AutomationDirect – Wiring Diagrams (cont'd)

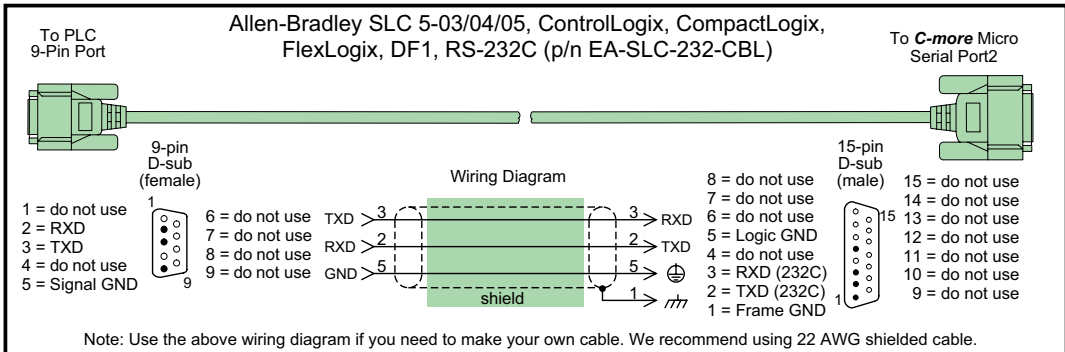
AllenBradley:

EA-MLOGIX-CBL



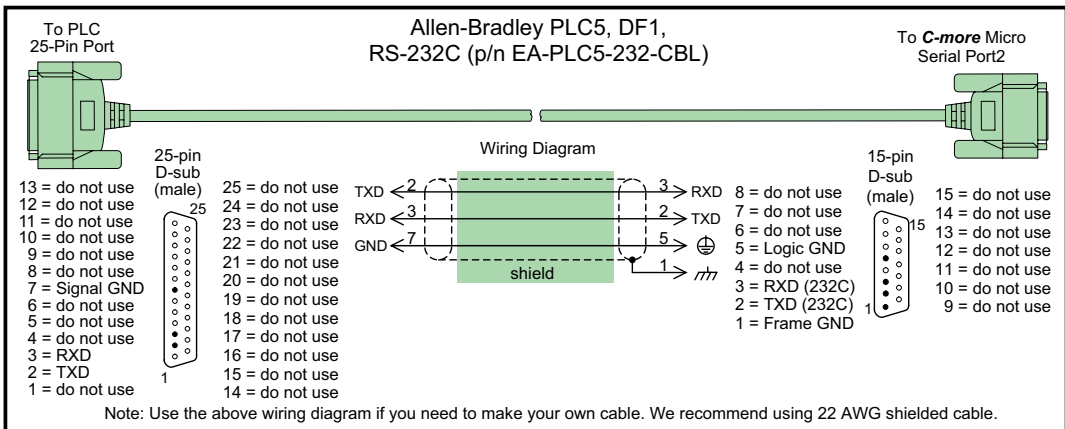
AllenBradley:

EA-SLC-232-CBL



AllenBradley:

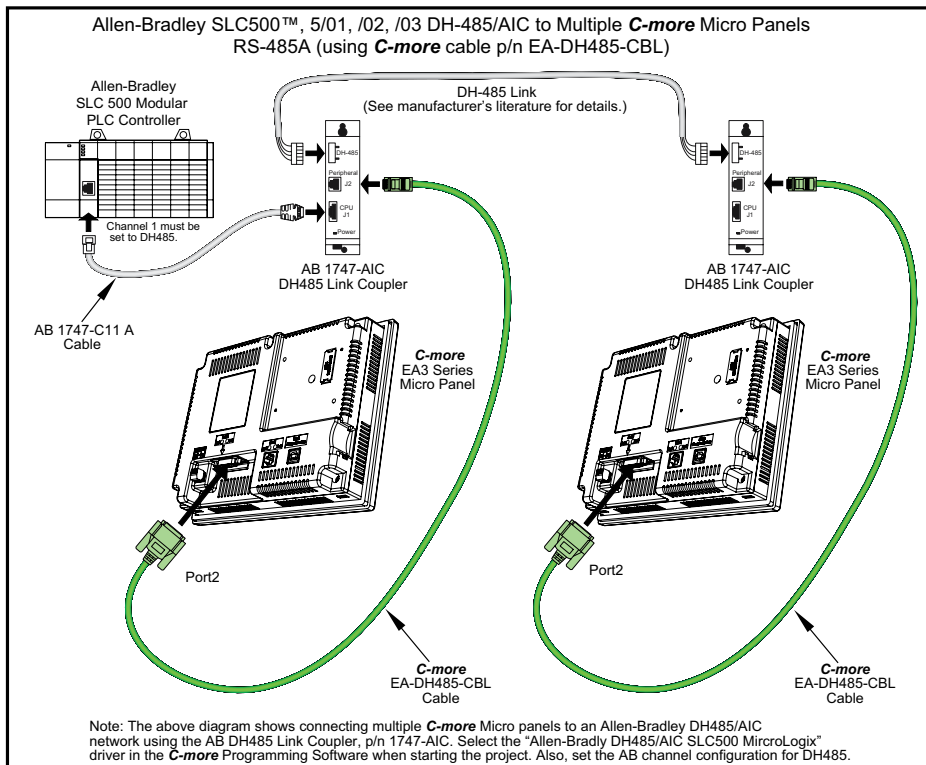
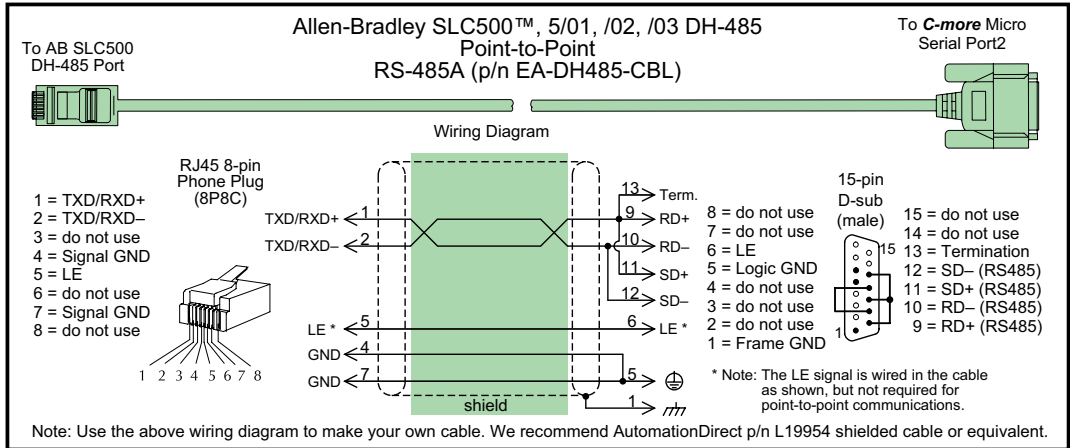
EA-PLC5-232-CBL



# Cables from AutomationDirect – Wiring Diagrams (cont'd)

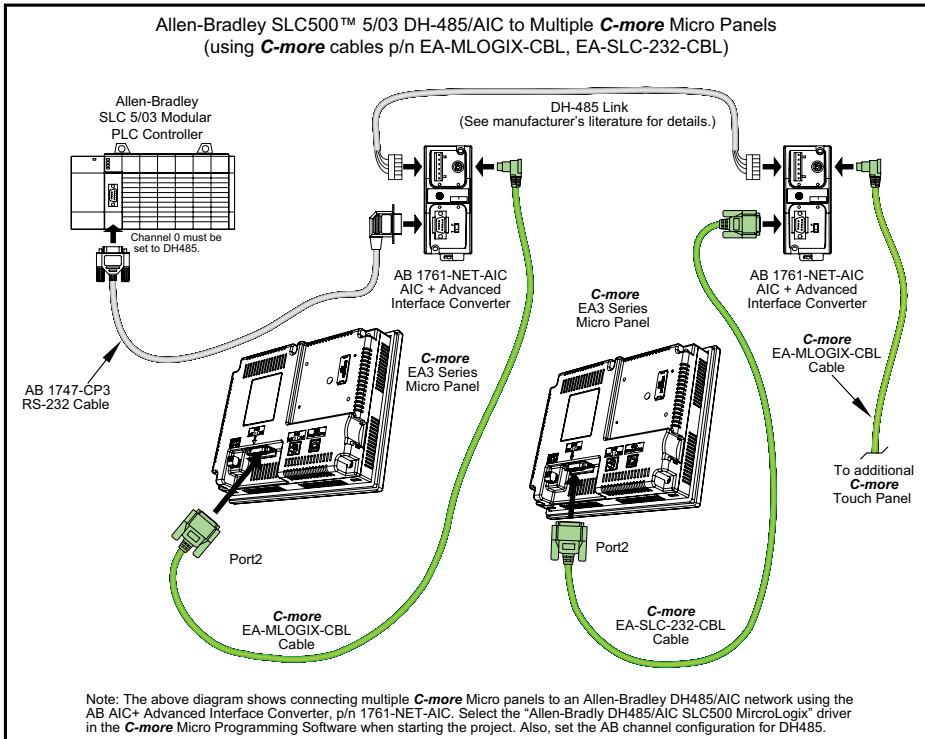
## Allen-Bradley:

## EA-DH485-CBL



## Cables from AutomationDirect – Wiring Diagrams (cont'd)

### Allen-Bradley:

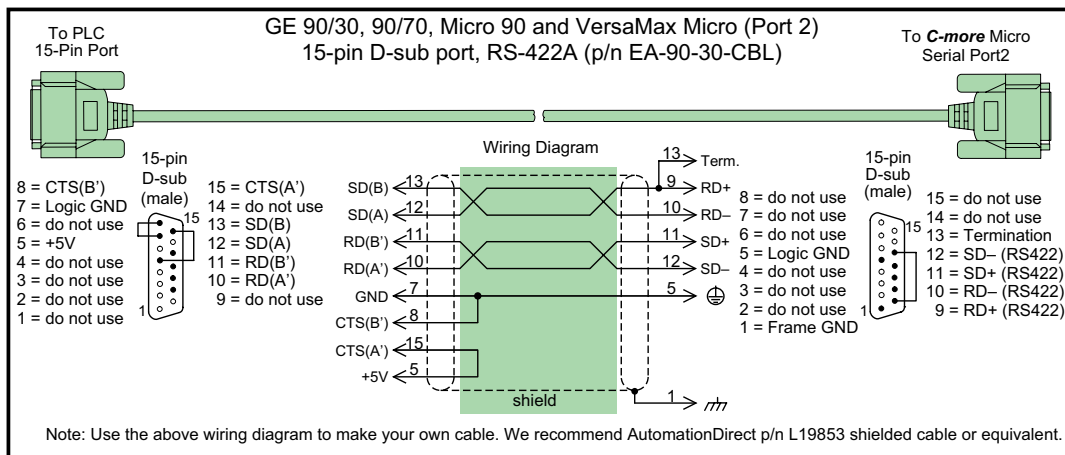




# Cables from AutomationDirect – Wiring Diagrams (cont'd)

GE:

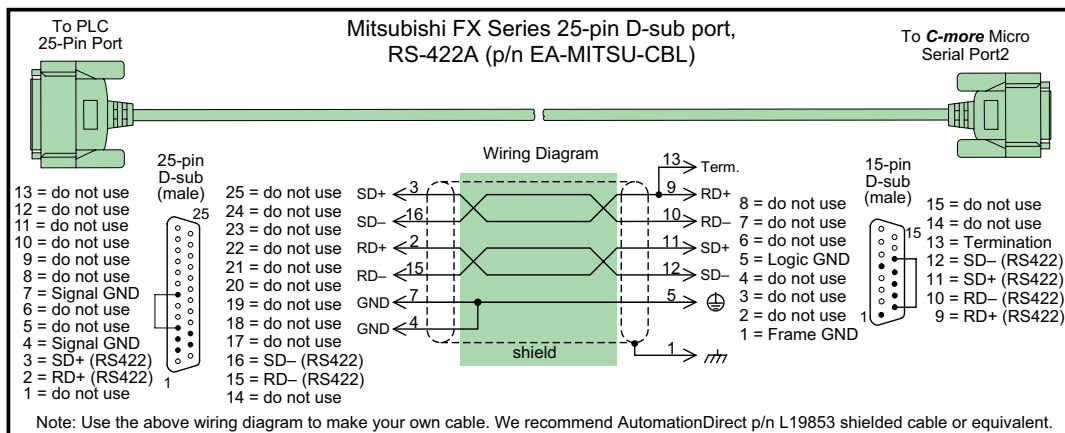
EA-90-30-CBL



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Mitsubishi

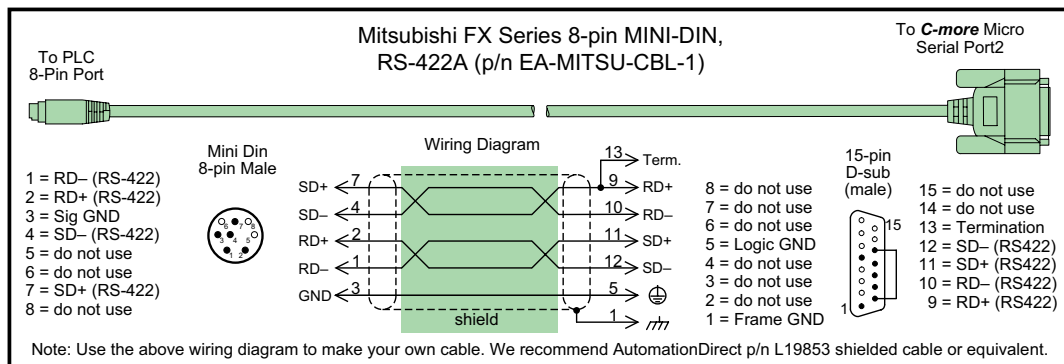
EA-MITSU-CBL



## Cables from AutomationDirect – Wiring Diagrams (cont'd)

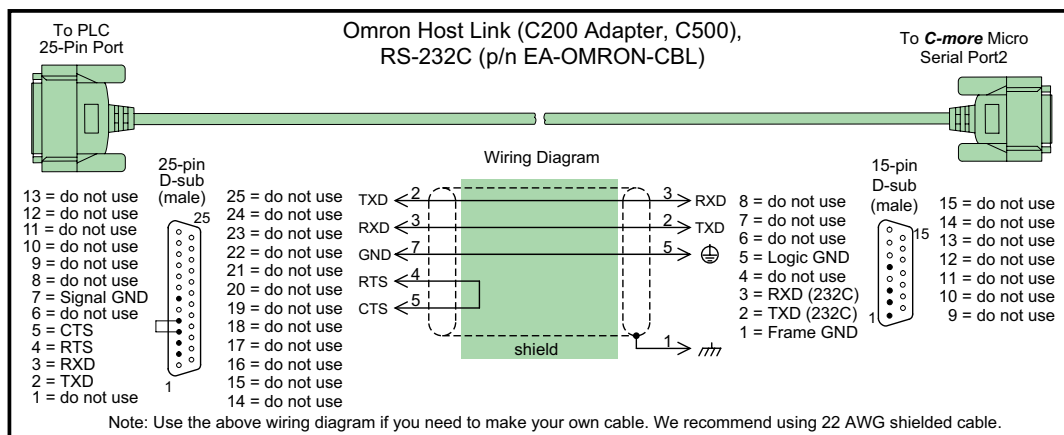
### Mitsubishi

### EA-MITSU-CBL-1



### Omron

### EA-OMRON-CBL



# User Constructed Cables – Wiring Diagrams

Diagram 1

User Constructed

**DirectLOGIC ZIPLink ZL-CMA15L Adapter Module to EA-COMCON-3A Terminal Block Adapter**  
RS-422A – PLC D2-250 (-1), D2-260 or DL06 – Port 2

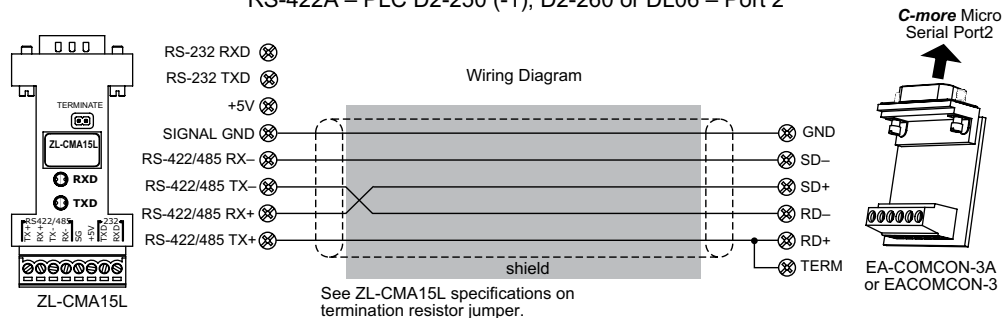
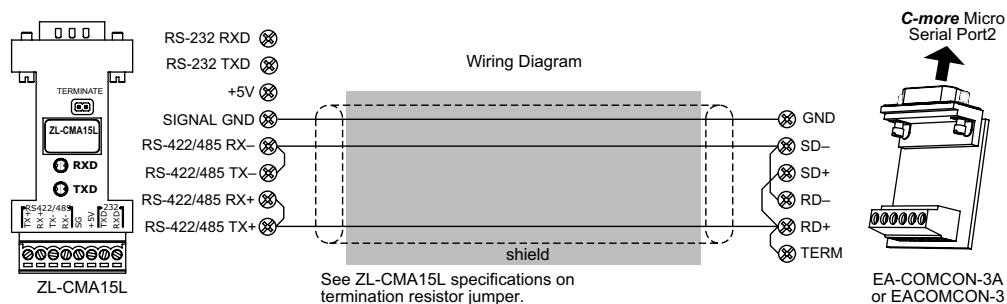


Diagram 2

User Constructed

**DirectLOGIC ZIPLink ZL-CMA15L Adapter Module to EA-COMCON-3 Terminal Block Adapter**  
RS-485A – PLC D2-260 or DL06 – Port 2



**NOTE:** The RS-422 and RS-485 wiring diagrams shown above are not for multi-drop networks involving connecting more than one PLC to a panel. Refer to the wiring diagram examples starting on page 6-40 if more than one PLC will be connected to a panel.

# User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 3

User Constructed

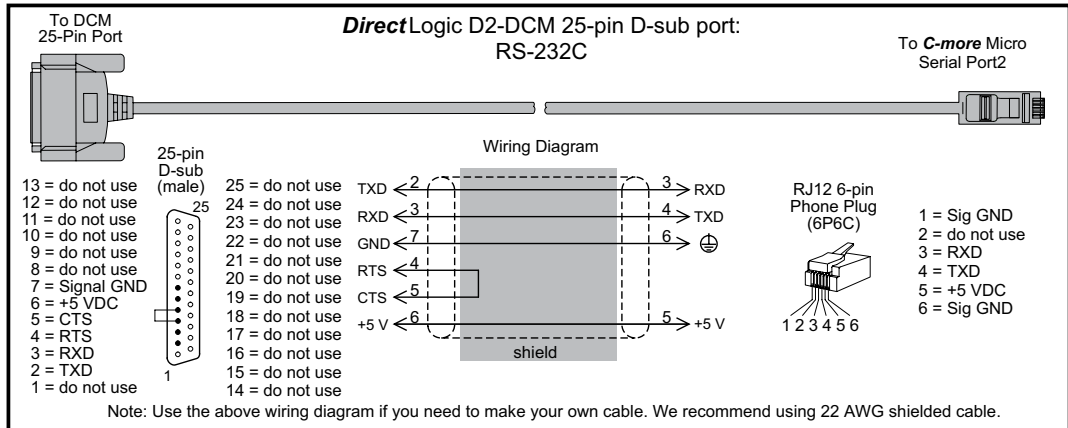
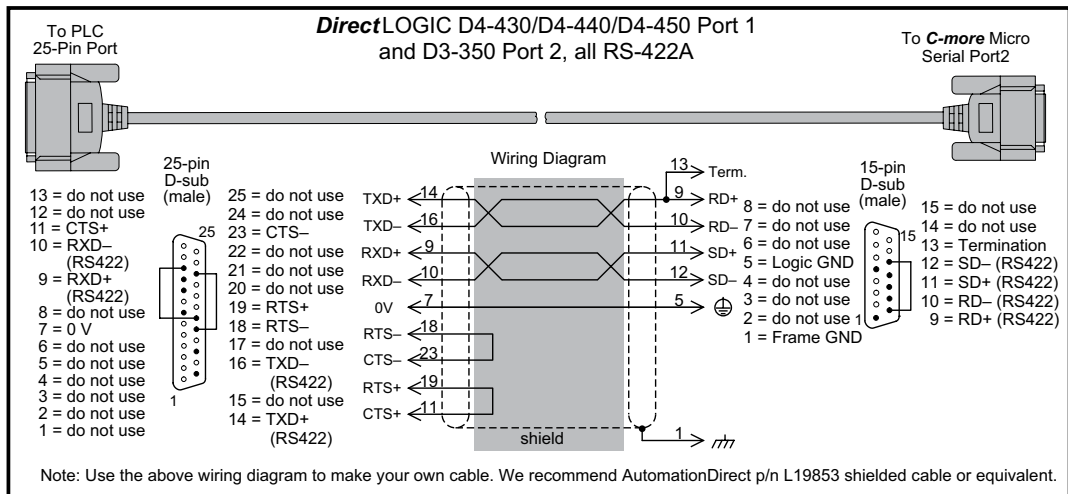


Diagram 4

User Constructed

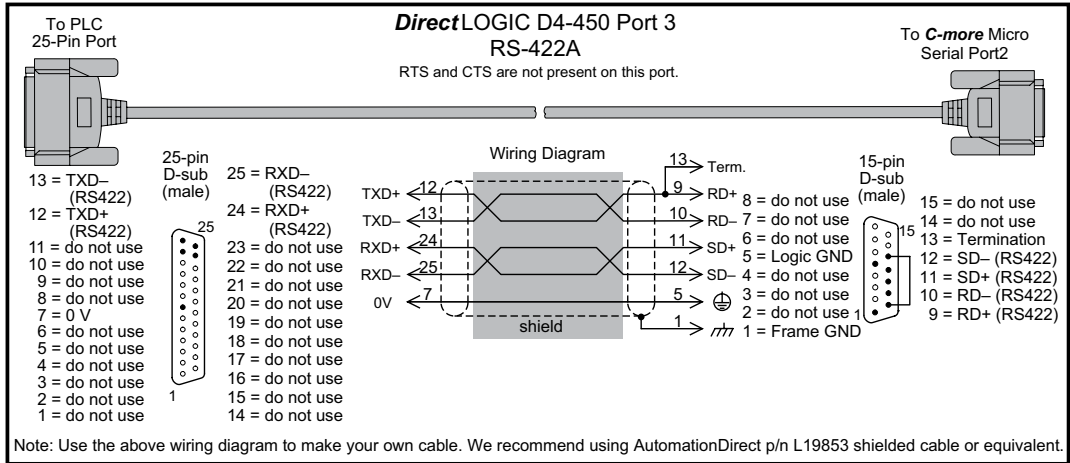


**NOTE:** The RS-422 wiring diagram shown above is not for multi-drop networks involving connecting more than one PLC to a panel. Refer to the wiring diagram examples starting on page 6-40 if more than one PLC will be connected to a panel.

# User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 5

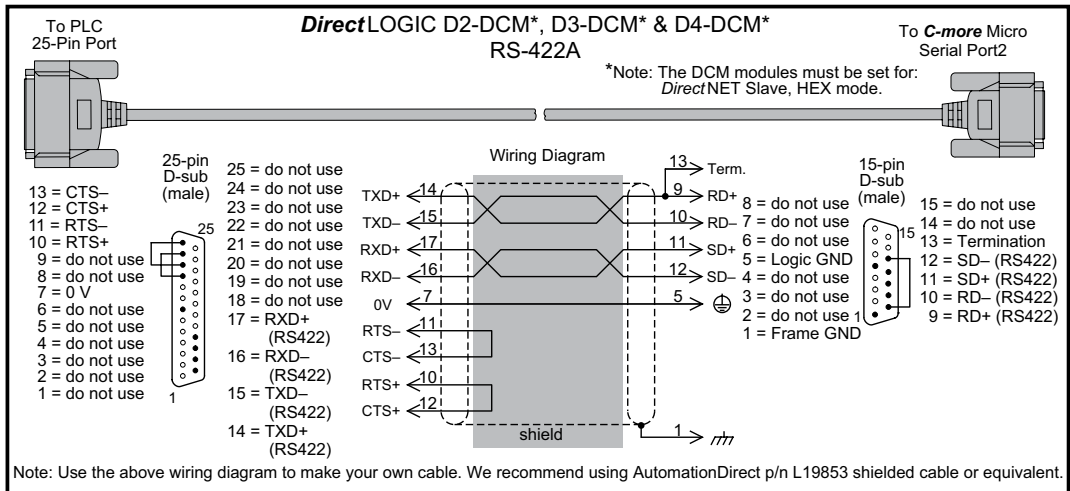
User Constructed



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Diagram 6

User Constructed



**NOTE:** The RS-422 wiring diagrams shown above are not for multi-drop networks involving connecting more than one PLC to a panel. Refer to the wiring diagram examples starting on page 6-40 if more than one PLC will be connected to a panel.

## User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 7

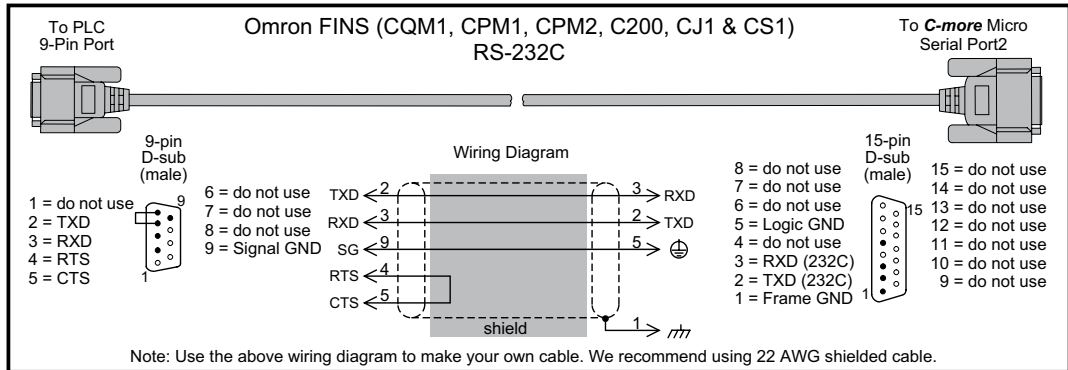
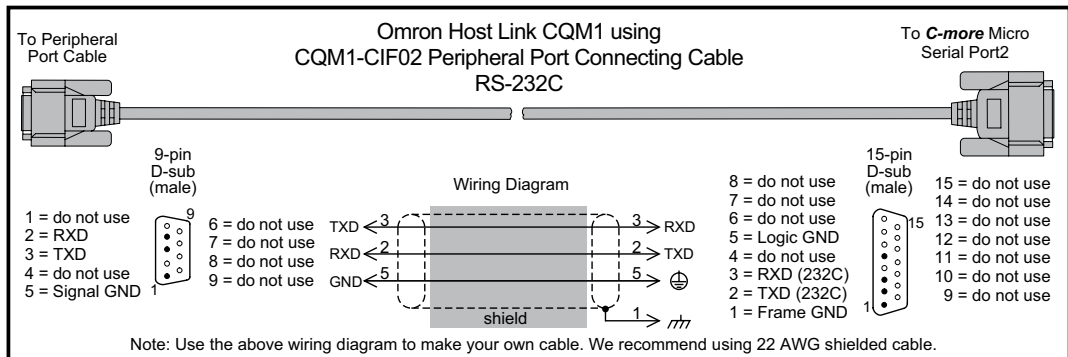
*User Constructed*

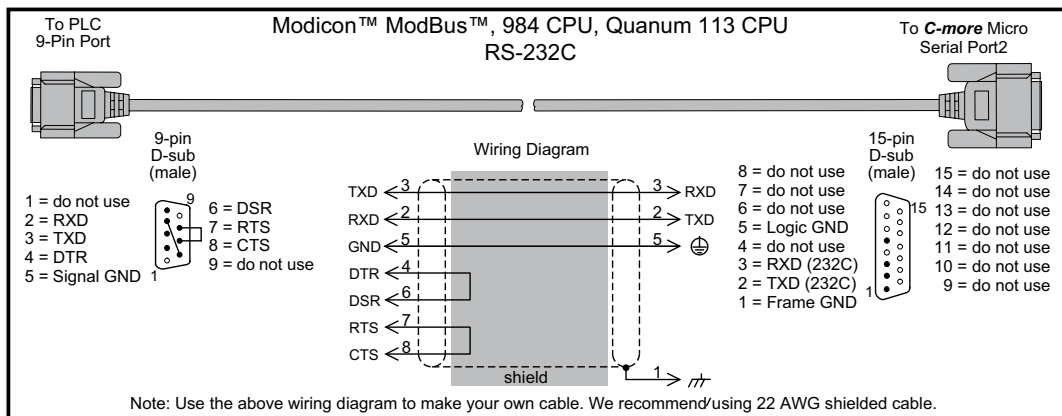
Diagram 8

*User Constructed*

## User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 9

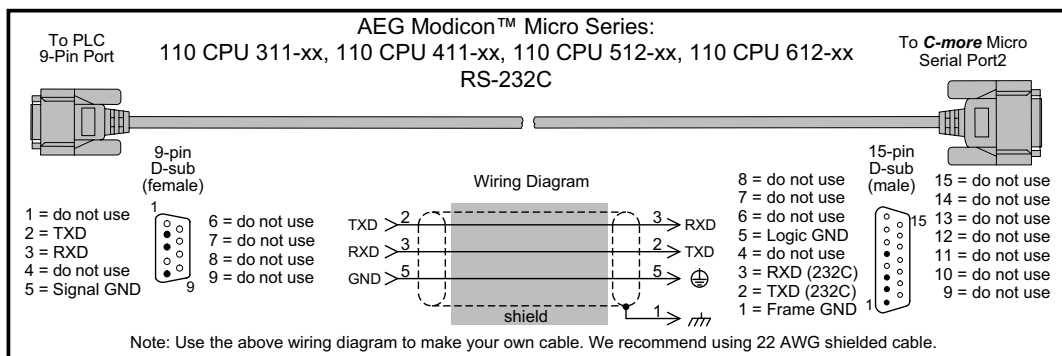
User Constructed



6

Diagram 10

User Constructed



## User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 11

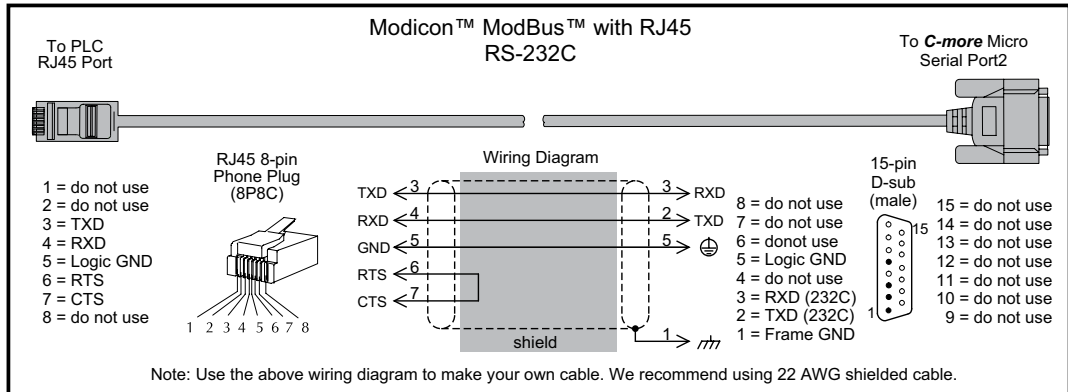
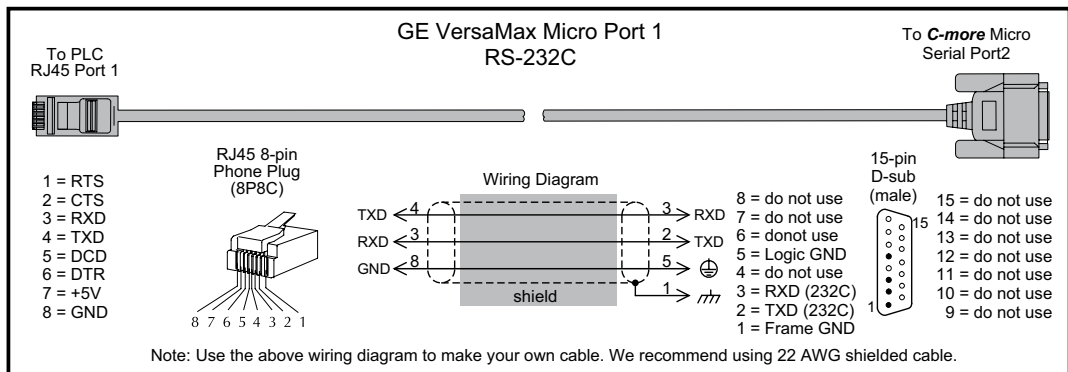
*User Constructed*

Diagram 12

*User Constructed*



## User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 13

User Constructed

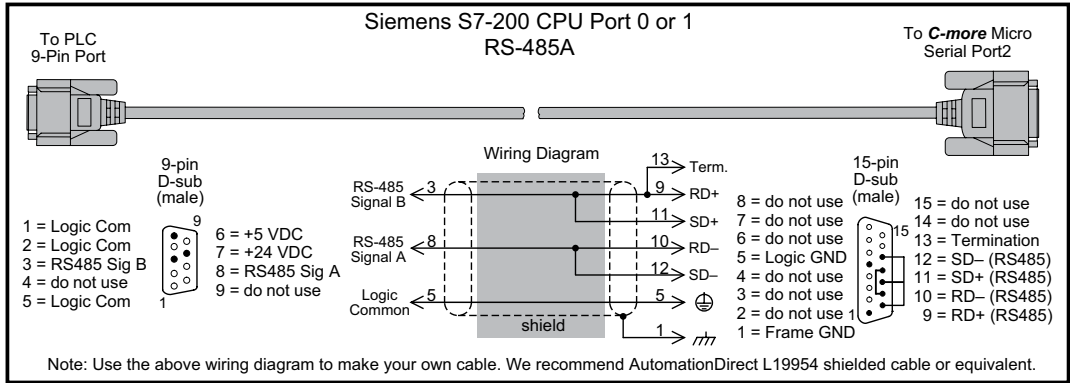
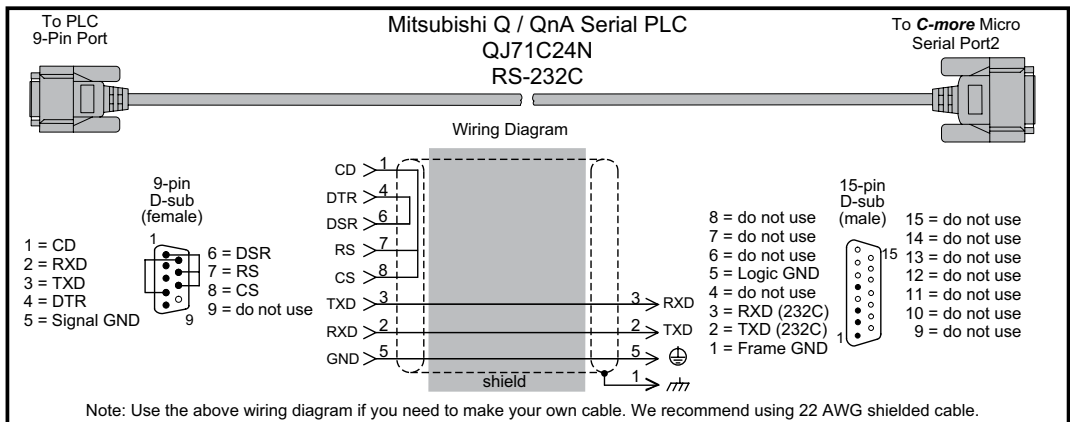


Diagram 14

User Constructed



# User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 15

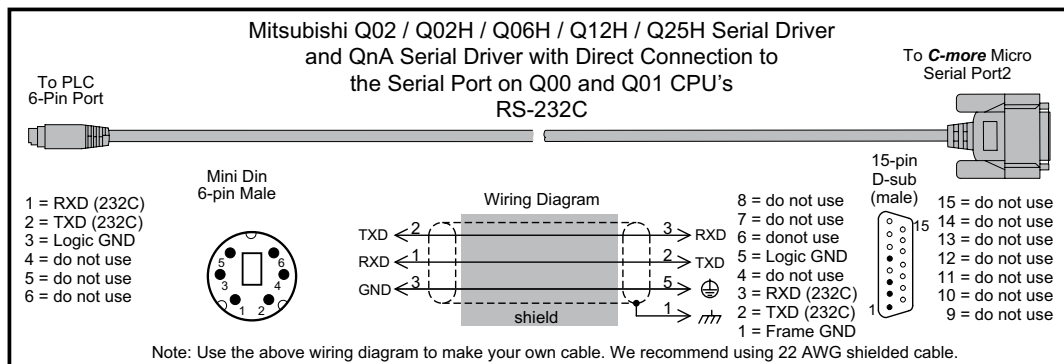
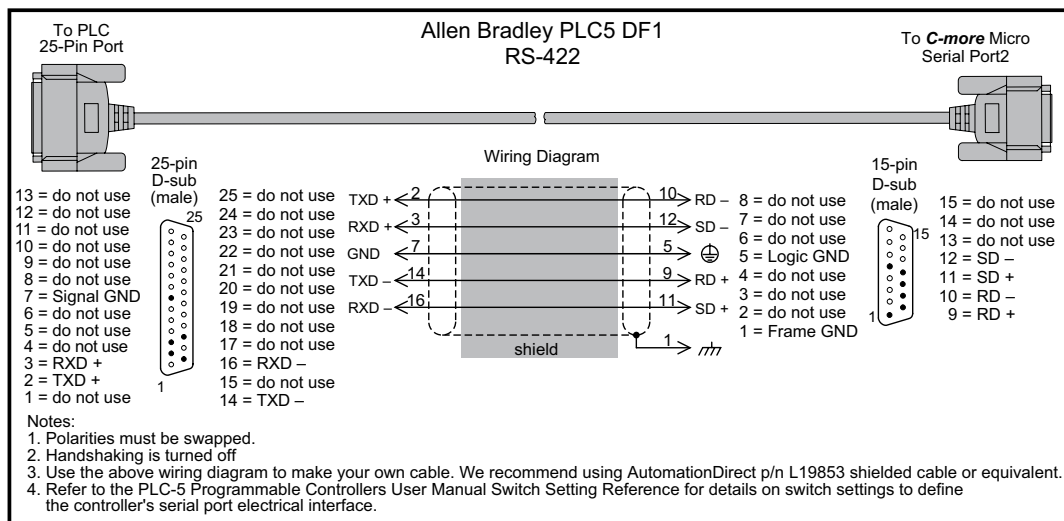
*User Constructed*

Diagram 16

*User Constructed*

# User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 17

User Constructed

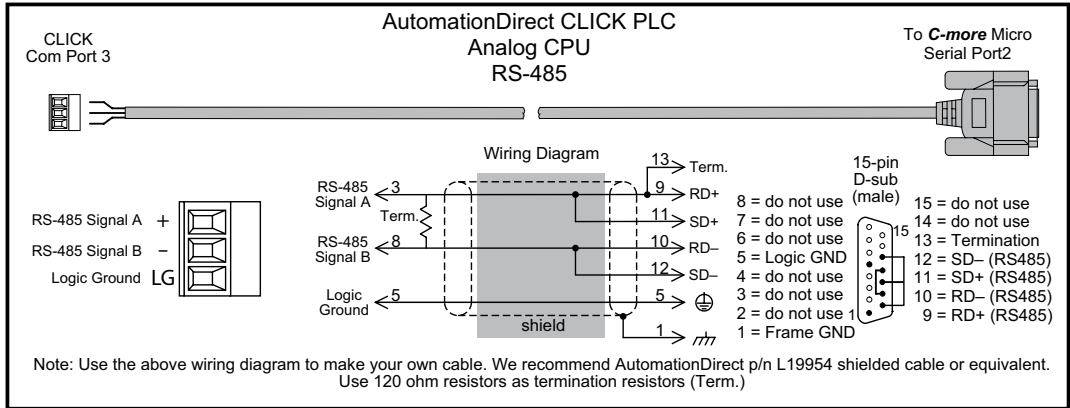
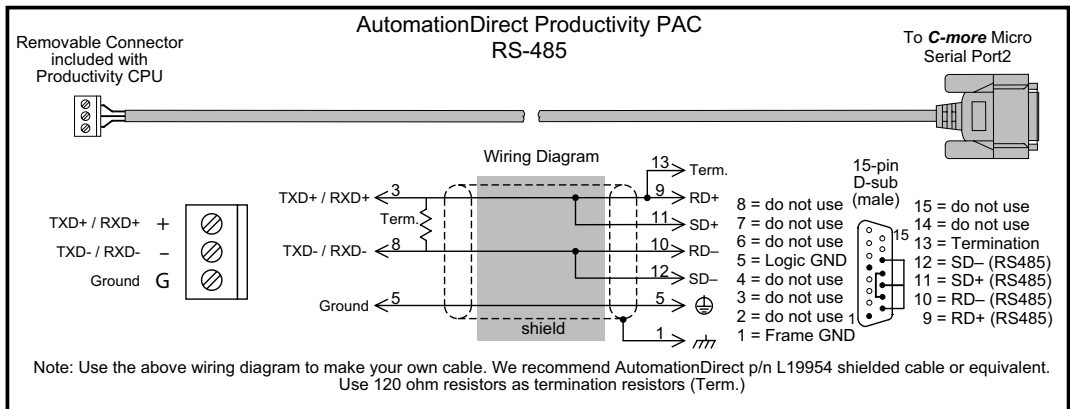


Diagram 18

User Constructed



## User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 19

User Constructed

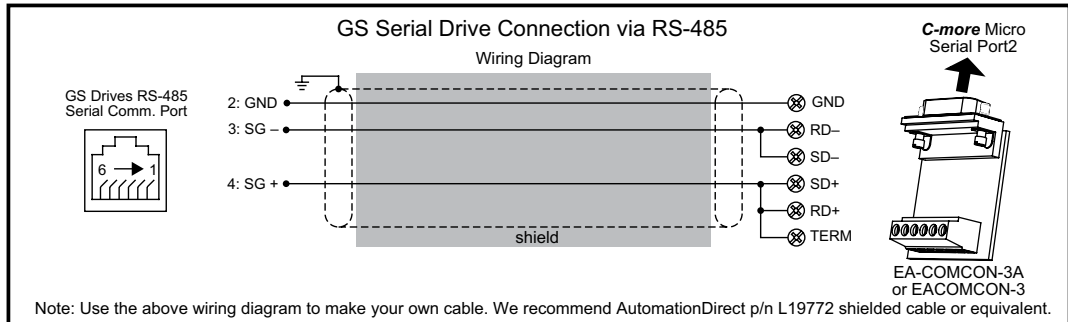
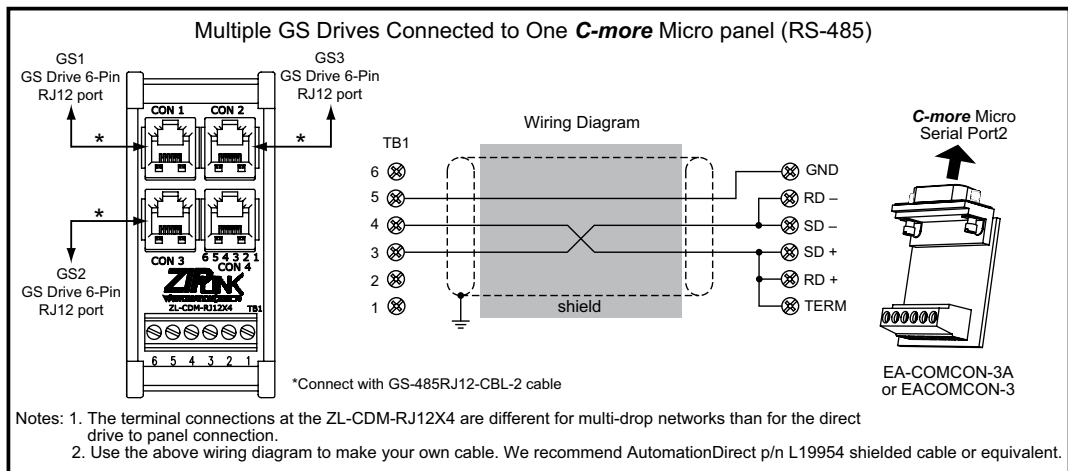


Diagram 20

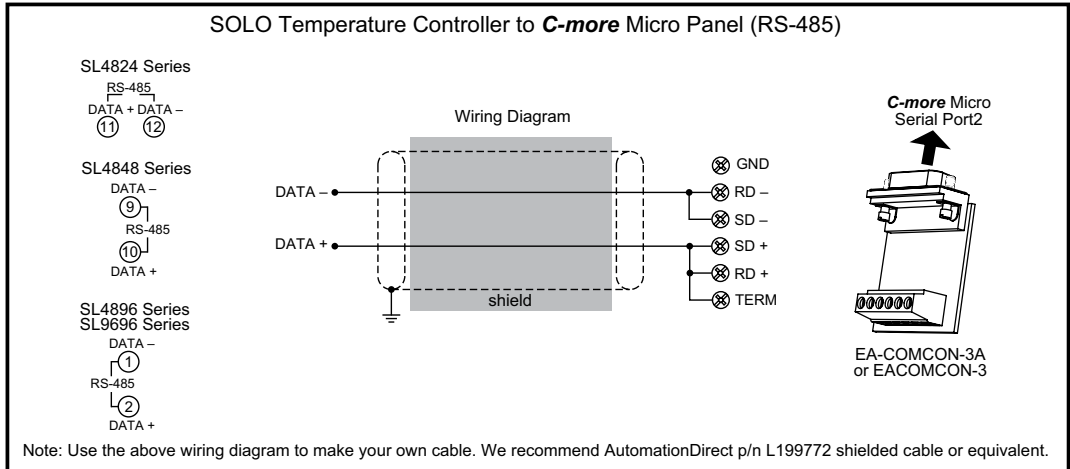
User Constructed



## User Constructed Cables – Wiring Diagrams (cont'd)

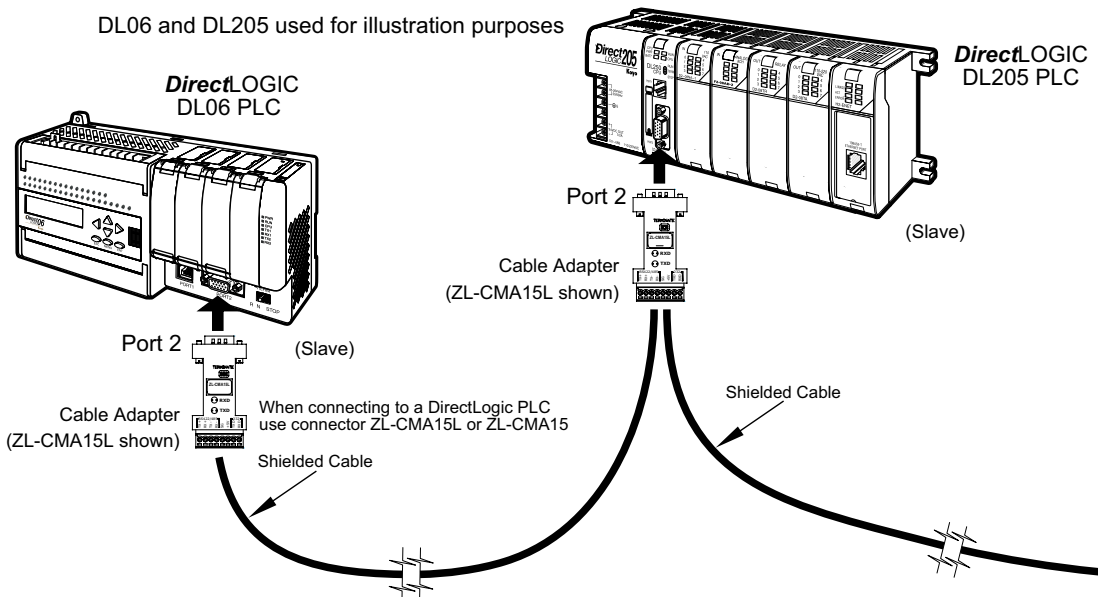
Diagram 21

User Constructed

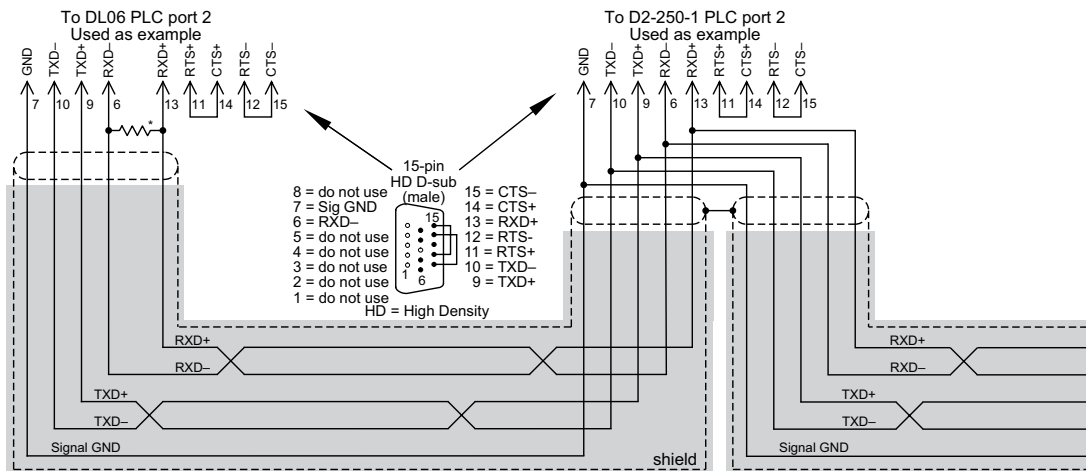


## RS-422A Multi-Drop Wiring Diagram Example

DL06 and DL205 used for illustration purposes



- Notes: 1. We recommend Belden 8103 shielded cable or equivalent.  
2. Wiring Diagram for this example, ZL-CMA15(L)

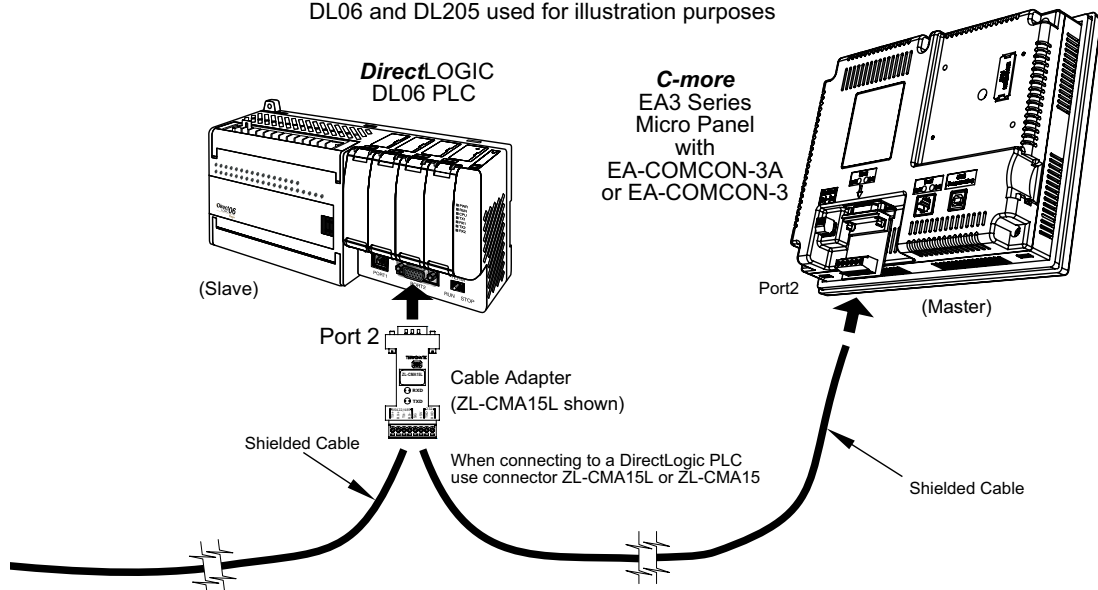


\* Termination resistors required at both ends of the network receive data signals to match the impedance of the cable (between 100 and 500 ohms).

Typical RS-422 Multi-Drop Wiring Diagram  
using DirectLogic pin numbers to illustrate

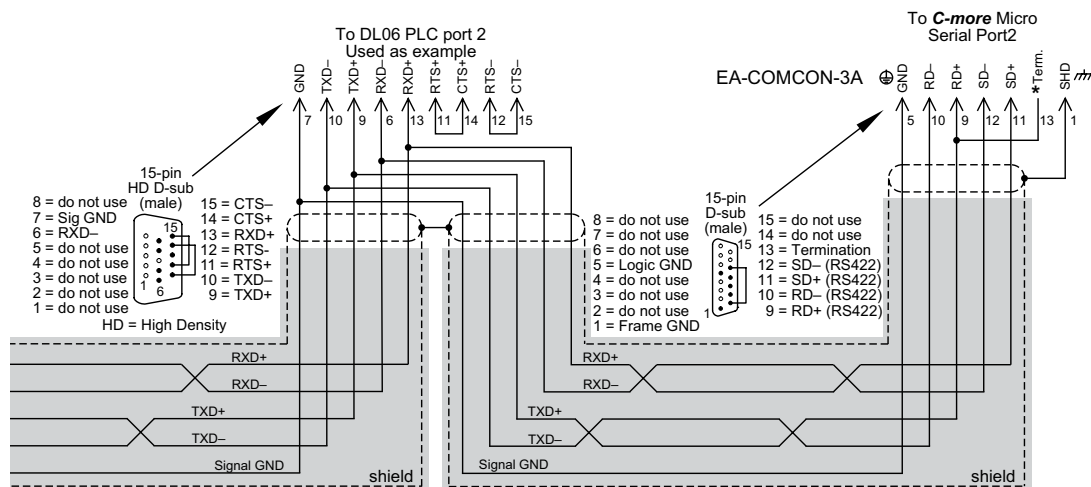
# RS-422A Multi-Drop Wiring Diagram Example (cont'd)

DL06 and DL205 used for illustration purposes



6

Notes: 1. We recommend Belden 8103 shielded cable or equivalent.  
2. Wiring Diagram for this example, ZL-CMA15(L)

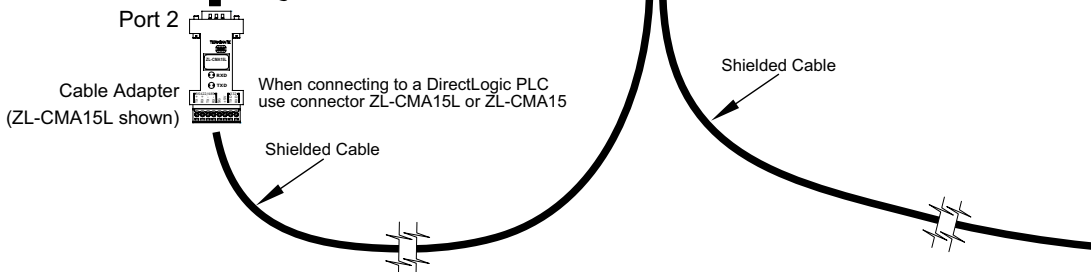
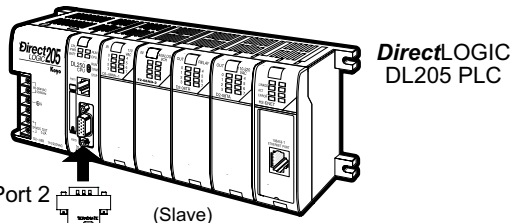
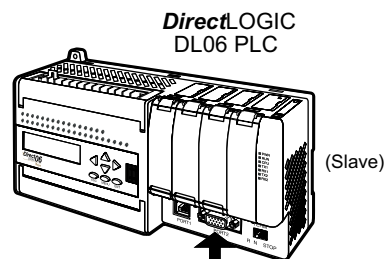


Typical RS-422 Multi-Drop Wiring Diagram (cont'd)  
using DirectLogic pin numbers to illustrate

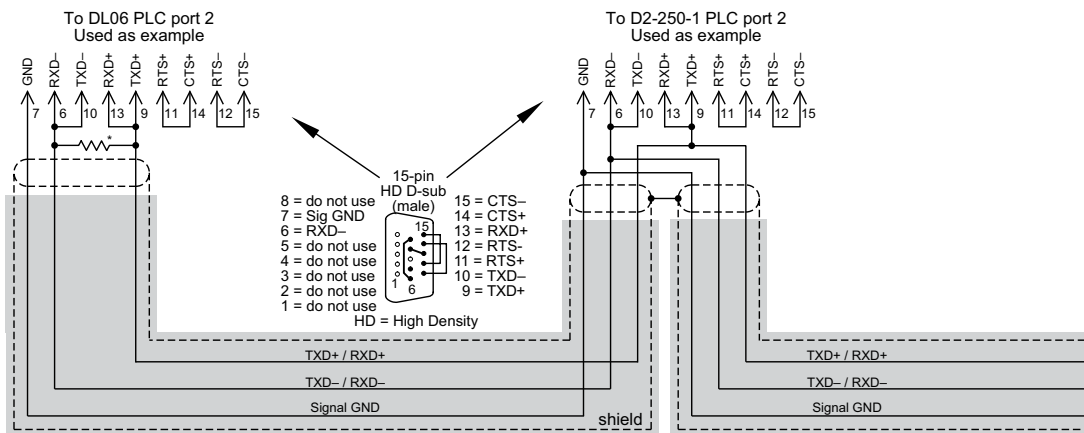
\* Termination resistors required at both ends of the network receive data signals to match the impedance of the cable (between 100 and 500 ohms). Jumper pin 13 to 9 on the **C-more** Micro Serial Port 2 15-pin connector to place the 120Ω internal resistor into the network. If the cable impedance is different, then use an external resistor matched to the cable impedance.

# RS-485 Multi-Drop Wiring Diagram Example

DL06 and DL205 used for illustration purposes



- Notes: 1. We recommend Belden 9842 shielded cable or equivalent.  
2. Wiring Diagram for this example, ZL-CMA15(L)



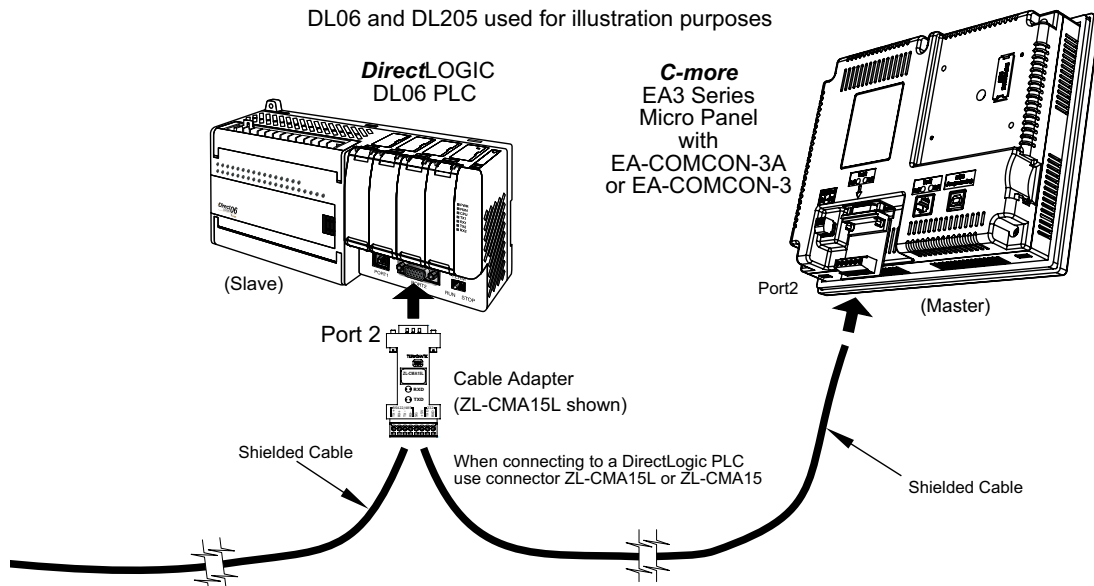
\* Termination resistors required at both ends of the network to match the impedance of the cable (between 100 and 500 ohms).

Typical RS-485 Multi-Drop Wiring Diagram  
using DirectLogic pin numbers to illustrate



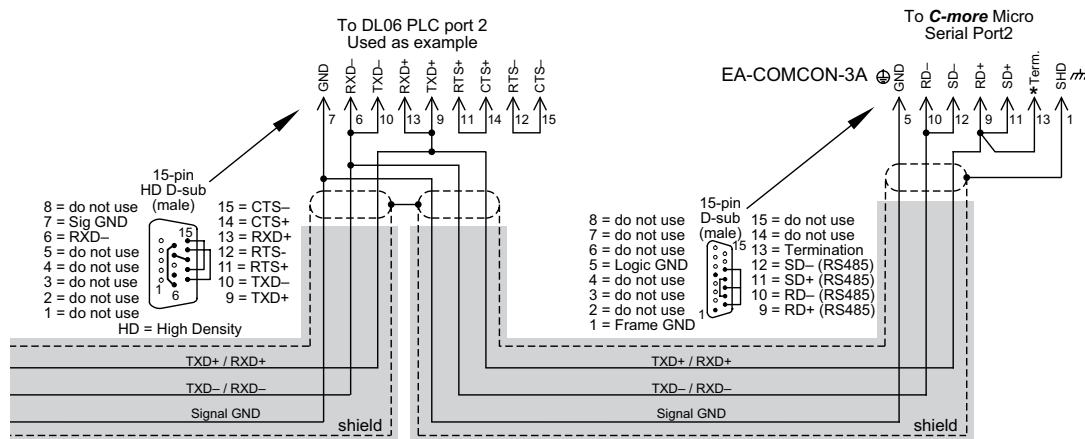
## RS-485 Multi-Drop Wiring Diagram Example (cont'd)

DL06 and DL205 used for illustration purposes



6

Notes: 1. We recommend Belden 9842 shielded cable or equivalent.  
2. Wiring Diagram for this example, ZL-CMA15(L)



Typical RS-485 Multi-Drop Wiring Diagram (cont'd)  
using DirectLogic pin numbers to illustrate

\*Termination resistors required at both ends of the network receive data signals to match the impedance of the cable (between 100 and 500 ohms). Jumper pin 13 to 9 on the C-more Micro Serial Port2 15-pin connector to place the 120Ω internal resistor into the network. If the cable impedance is different, then use an external resistor matched to the cable impedance.



# MAINTENANCE

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# CHAPTER 7

## In this Chapter...

Project Backup .....	7-2
Check Operating Environment .....	7-2
Check Operating Voltage .....	7-2
Check Transmit and Receive Indicators.....	7-3
Check Physical Conditions.....	7-3
Run Tests under the System Setup Screens.....	7-4
Check Settings under the System Setup Screens .....	7-5
Cleaning the Display Screen.....	7-5
Check Project Functionality .....	7-6
Checks from the <b>C-more</b> Micro Programming Software .....	7-6

<b>Notes:</b> .....	<b>7-7</b>
---------------------	------------

## Maintenance



Although the **C-more®** Micro panels require very little maintenance, setting up a routine maintenance schedule will ensure the longevity of the product in your application.

The following are some suggestions of items to include in a preventive maintenance list or schedule. Most of these items should be scheduled quarterly or bi-annually.

### Project Backup

During a routine preventive maintenance schedule is a good time to make sure that there is an up-to-date backup of the application project.

### Check Operating Environment

Make sure the **C-more** Micro panel is operating in the proper temperature range: (0 to 50 °C (32 to 122 °F)).



Make sure the **C-more** Micro panel is operating within the specified humidity range: (5–95% RH, non-condensing).



Make sure the operating environment is free of corrosive vapors and gasses.



### Check Operating Voltage



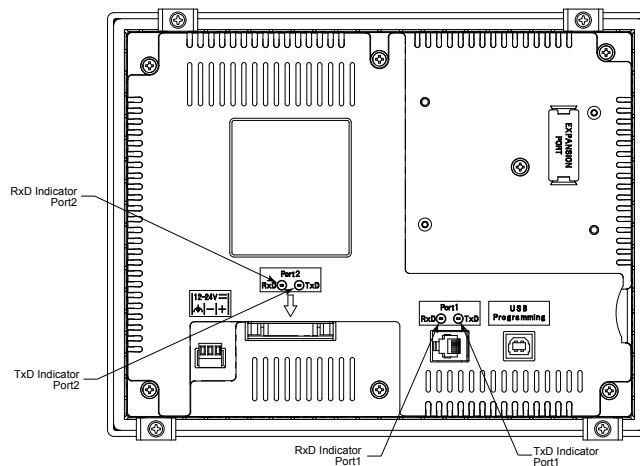
Check the input voltage that is powering the **C-more** Micro panel to make sure it is within the appropriate range.

**12-24 VDC:** The acceptable voltage range to the panel is 10.2-26.4 VDC

## Check Transmit and Receive Indicators

During a routine maintenance check is a good time to take a quick look at the status indicators on the back of the **C-more** Micro panel. There should be activity on both the TxD and RxD LED indicators when connected serially to a PLC or control device and data is being updated on the screen.

### C-more Micro Panel Communication Port Status Indicators



## Check Physical Conditions

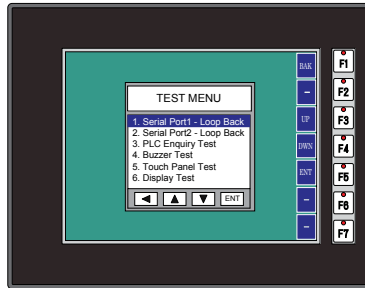
Make sure that harmful chemicals are not being used around the **C-more** Micro panel. Look for any deterioration of the panel's bezel and front display area. See Chapter 2: Specifications for identification of the materials on the face of the panels.

Check the mounting gasket to make sure it is sealing properly and has not deteriorated. Replace the mounting gasket if there are any signs of deterioration, or if there is any evidence that moisture/liquids have penetrated to the inside of the enclosure where the panel is mounted. Information on replacement gaskets can be found in **Chapter 9: Replacement Parts**.

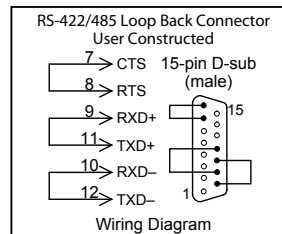
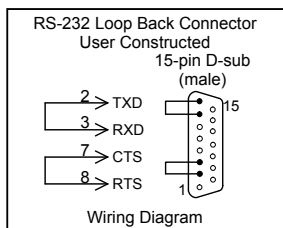
Check to make sure that none of the cooling vents around the inside section of the **C-more** Micro panel are clogged with dust or debris. Also make sure that there is clearance around the panel as shown in **Chapter 4: Installation and Wiring**.

## Run Tests under the System Setup Screens

Use the **C-more** Micro panel's System Setup Screens to test communication port, PLC connectivity, the internal beeper and touch screen operation. See **Chapter 5: System Setup Screens** for additional details.



**Serial Port - Loop Back Test** - Performs a test to verify either the RS-232 or the RS485/422 serial communications functionality from the 15-pin connector (Port 2) on the panel is operating correctly. A loop back connector inserted into the port is required for proper testing. Wiring diagrams to build RS-232 and RS-485/422 loop back connectors are shown below.



**PLC Enquiry Test** - Tests the communications with the selected PLC protocol between the panel and a connected PLC.

**Buzzer Test** - Use this option to test the internal audible beeper of the panel.



**Touch Panel Test** - Tests the response of the touch screen area to contact. This test is used to make sure the touch screen area is responding properly.

## Check Settings under the System Setup Screens

Use the **C-more** Micro panel's System Setup Screens to check the various settings such as the beep and orientation. See **Chapter 5: System Setup Screens** for additional details.

**Beep** - Used to enable or disable the internal audible beeper. the default is beep on.

**Calibration** - Used to calibrate the touch screen on the panel.

## Cleaning the Display Screen

The display screen should be cleaned periodically by wiping it with a lint free damp cloth using a mild soap solution. Dry the surface when finished with a lint free cloth. Do not use cleaning solvents (ammonia, alcohol, acetone, etc.) which may damage the plastic housing and touch screen.

The longevity of the touch screen can be increased by the use of the **EA-x-COV2** clear screen overlay. See **Chapter 3: Accessories** for additional information on the screen overlay.

To prevent damage to the touch screen, avoid touching the screen with sharp objects, striking the screen with a hard object, using abrasives on the screen, or using excessive force when pressing the touch screen.

## Check Project Functionality

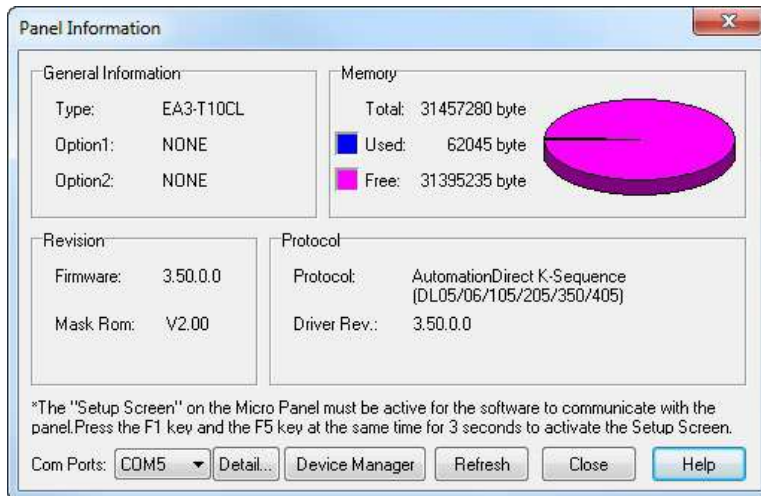
During routine maintenance is a good time to check the functionality of your application, making sure that various areas on different screens do what they were designed to do. An outline or specification for the application is a useful tool for testing the various aspects of your application. As a starting point, you may want to run through all the screens to make sure they are accessible if the project allows this.

If there are any trouble-shooting procedures programmed into the **C-more** Micro panel application, now is a good time to also check these aids.

## Checks from the C-more Micro Programming Software

If you have a PC available with the **C-more** Micro Programming Software, EA-MG-PGMSW, installed, and the panel is connected to the PC, you can check the status of the panel from the **Panel Information** window.

The **Panel Information** window shown below will indicate the panel type, the total memory, memory used, free memory, firmware version, mask ROM version, and the PLC protocol selected for its serial communication ports. The programming software can also be used to update the panel's firmware to the latest version.





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# TROUBLESHOOTING

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# CHAPTER 8

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## Troubleshooting



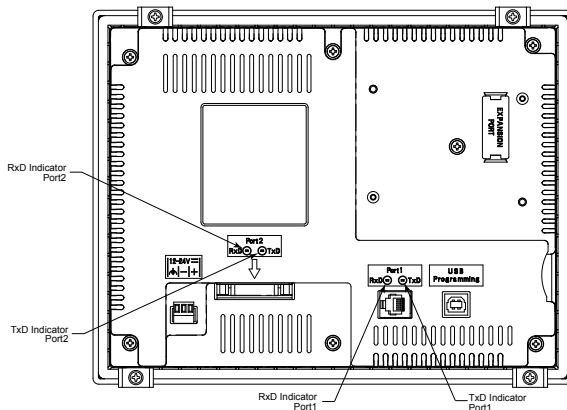
The following are some problems that may be encountered during the installation and operation of your **C-more®** Micro panel. We have made some suggestions on what to check in order to correct the problem.

### C-more Micro Panel does not Power up

1. If the panel's display is blank, not responding, and the panel is powered from a 12-24 VDC power source, check the incoming DC voltage level to the adapter with a voltmeter. The DC voltage level to the adapter should be in the range of 10.2-26.4 VDC.
2. If the incoming DC voltage is zero, check any fusing that may be in the circuit. If the fuse is open, determine cause and replace.

### Display is Blank

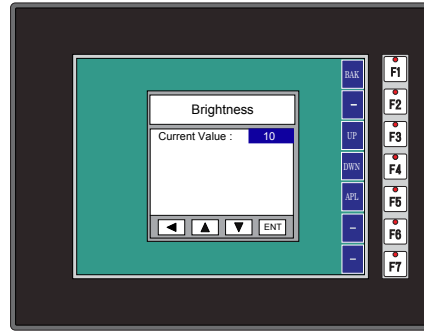
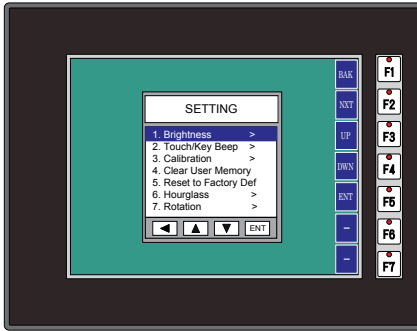
1. If the panel's display is blank, but the panel has power, check the TxD and RxD indicators on the back side of the panel while the panel is communicating with the PLC. The LED indicators should be on or flashing at a fast rate. Indicator activity shows that the panel is communicating with the PLC.
2. If there is communication activity, but the display is still blank, there is the possibility the program in the PLC is controlling the display. Press the F1 and F5 keys simultaneously for three seconds. The panel will change to the System Setup Screen menu even if the screen is being forced to display a blank screen by the PLC program.
3. If the setup screen displays, check the PLC program. The screen will be in the off state if a 0 has been placed in the current screen tag.



## Display is Dim



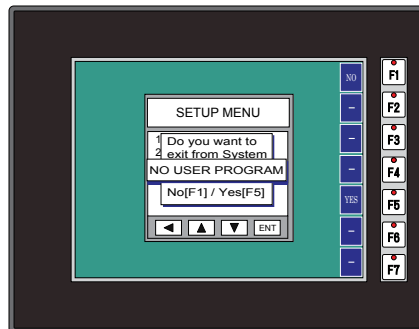
**NOTE:** When powered from a PC, EA3-T6CL will operate in Low-Power mode and the screen brightness is diminished.



1. Press the F1 and F5 keys simultaneously for three seconds and the panel will bring up the System Setup Screen menu.
2. Select the Setting menu, and then select item 1: Brightness. The default value is 10.
3. Adjust the current value from 1 to 16 and the panel's brightness should become greater as the value moves toward 16 and it should become less as the value moves toward 1.
4. If this does not happen, then the panel may need to be replaced. See note above.

## No User Program

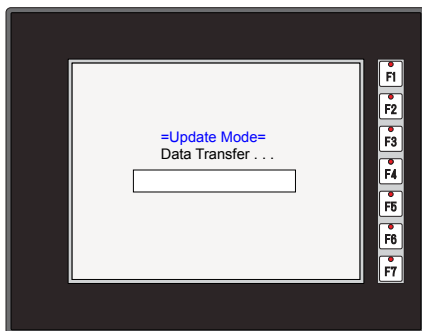
1. If the panel is displaying the message "No User Program" after it is powered up, then there is no project downloaded into the panel.
2. Using the EA-MG-PGMSW **C-more** Micro Programming Software, download your project to the panel.



## Lost Firmware – ‘Update Mode’ Screen Displayed

If the **C-more** Micro panel's firmware becomes corrupted or for some reason is lost from the panel's memory, the panel will display the **Update Mode** screen as shown below. This can happen if communication between the PC and the panel is interrupted during a firmware update. To resolve the problem, try the following steps in the order shown:

- 1.) Cycle power to the panel.
- 2.) If the problem persists, update the firmware to the panel using the **Update Firmware** utility under the **Panel** pull down menu in the EA-MG-PGMSW Programming Software.
- 3.) If the problem persists, depress function keys F1 and F5 while cycling power to the panel. The panel should come up in the **Update Mode** screen as shown below. Perform Step 2 again.
- 4.) If there is still a problem, call Tech Support @ 770-844-4200 in the U.S.A.



## Updating Firmware

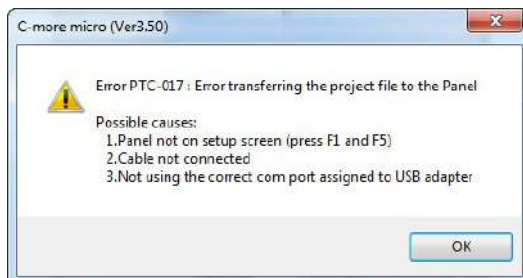
The panel firmware version must match both the programming software version and the version that the program was saved as. For example, if a version needs to be updated to take advantage of new functionality or product line additions follow these steps:

- 1.) Create a backup copy of the project on the PC. From the **C-more** Micro programming software, read the project from the panel and save to a desired location.
- 2.) Update the programming software on the PC.
- 3.) Cycle power to the panel.
- 4.) Update the firmware to the panel using the **Update Firmware** utility under the **Panel** pull down menu in the EA-MG-PGMSW Programming Software.
- 5.) Open the project in the updated programming software. Save the project. Transfer the project to the panel.

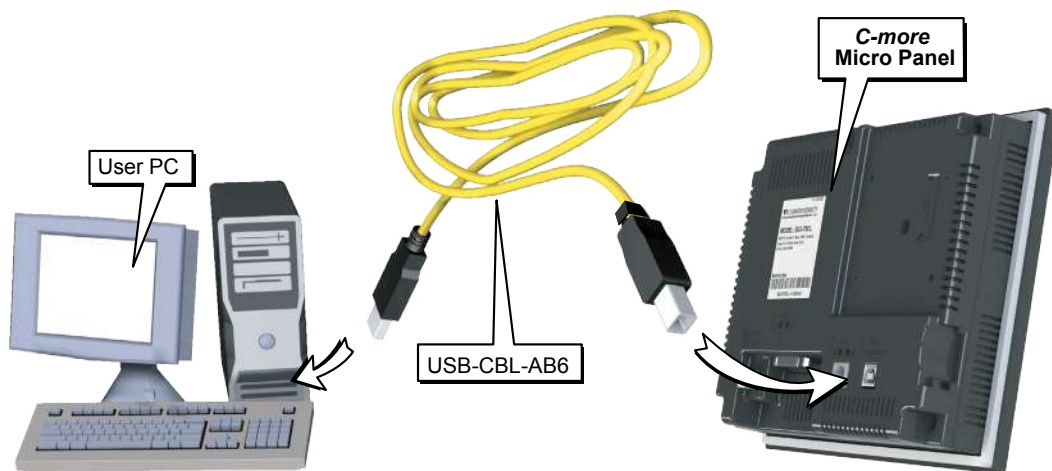
Part Number	Panel Software / Firmware Version Required	Part Number	Panel Software / Firmware Version Required
EA3-S3ML-RN	4.30 or later	EA3-T6CL	3.6 or later
EA3-S3ML-R	4.30 or later	EA3-T8CL	3.5 or later
EA3-S3ML	4.20 or later	EA3-T10CL	3.5 or later
EA3-T4CL	4.20 or later		

## No Communications between Panel and PC (Personal Computer)

There are three possible causes that prevent transferring the project to the **C-more** Micro panel.



1. **Panel not on setup screen (press F1 and F5)** - Press and hold the F1 and F5 buttons simultaneously for three seconds to enter the setup screen.
2. **Cable not connected** - Double check the programming cable to make sure the panel is correctly connected to the USB port on the PC.



**NOTE:** The USB Type B programming port has an internal USB to serial converter. When the device is properly installed and the USB programming cable connects the panel to the PC, the port will be identified as a serial communications port with an assigned COM port number.

No communications between panel and PC continued top of next page.

## No Communications between Panel and PC (Personal Computer) (cont'd)



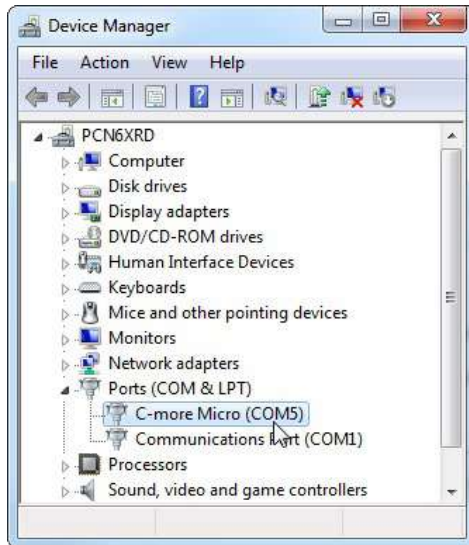
**NOTE:** The USB Type B programming port has an internal USB to serial converter. When the device is properly installed and the USB programming cable connects the panel to the PC, the port will be identified as a serial communications port with an assigned COM port number.

- 3. Not using the correct COM port assigned to the USB connection** - If the **C-more** Micro panel is on the setup screen and the cable connection is correct, then check the PC COM port setting.



If you are unsure which COM port the **C-more** Micro programming cable is connected to, click on the **Device Manager** button. This will open Windows ® **Device Manager**.

In the **Device Manager** window, view the active ports by clicking the + button beside the Ports (COM & LPT) menu item. The **C-more** Micro panel uses a USB driver called **C-more** Micro.



COM4 is the USB port used in this example. If you cannot find the **C-more** Micro Comm Port under Ports (COM & LPT) in **Device Manager**, the USB driver may not be correctly installed or the driver has a problem. Follow these steps to re-install the driver:

1. Uninstall the **C-more** Micro programming software.
2. Unplug the cable between the PC and the **C-more** Micro panel.
3. Re-install the **C-more** Micro programming software. Make sure the install USB driver checkbox is selected.
4. If you have selected the correct COM port and the error still occurs, try connecting the programming cable to a different USB port on the PC and try again.
5. If the problem persists, call Technical Support at (770) 844-4200, available from 9:00 A.M. to 6:00 P.M. Eastern Time.



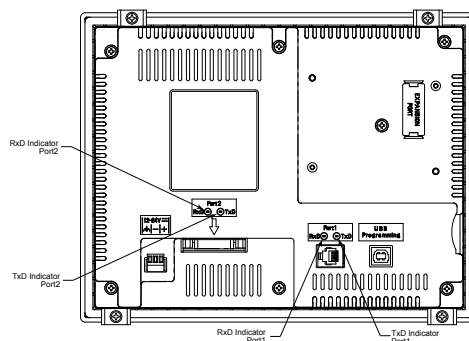
## No Communications between Panel and PLC

The **C-more** Micro panel communicates with a designated PLC or controlling device through the panel's RS-232 / RS-485 / RS-422 communications port (Port1 or Port2).

1. Check the TxD and RxD status indicators on the back of the panel. The indicator LED's should be on or flashing at a fast rate. If there is activity on the LED indicators, then the panel and PLC are communicating.

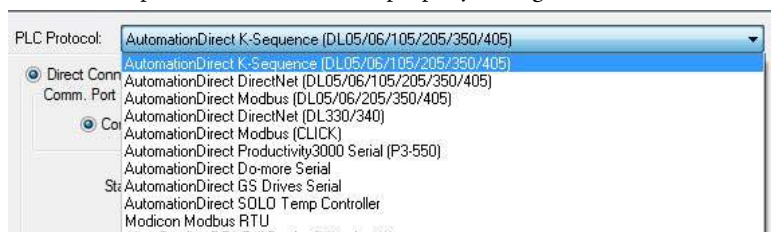


**NOTE:** For communications to be present between the panel and PLC, the panel must contain a project requesting data from the PLC.



If there is no activity on one or both TxD and RxD LED status indicators, then it should be suspected that either:

1. The communication settings are incorrect - Open Panel Manager in the **C-more** Micro programming software and verify that the correct panel Comm. Port is selected. Verify that the correct PLC protocol is selected and properly configured.



2. The cable is bad and needs to be replaced - Try a proven cable.
3. Test panel serial port. See **Chapter 5, Serial Port - Loop Back Test**. If possible switch the panel with a panel that is communicating properly.
4. The serial port on the PLC is defective.



**NOTE:** Electrical noise, pulse generating wiring and/or improper grounding can also cause problems with communications. Refer to the Electrical Noise Problems section in this chapter for additional help if electrical noise is suspected. Selecting a lower communication rate in Panel Manager may help the panel resist noise.

## Panel & PLC Error Codes

The **C-more** Micro panel includes built-in PLC communication protocol diagnostics that monitor the exchange of data between the panel and the PLC. The diagnostics look for the proper exchange of data, correct handshaking signals, addressing errors, incorrect data bytes, wrong packet format, etc. The diagnostics also monitor and display any of the errors that the designated PLC generates if there is a problem with the PLC's communications. The PLC generated errors are interpreted by the **C-more** Micro programming software and are displayed across the top of the panel's display embedded as a hexadecimal value in error code P499.

If a **C-more** Micro communication error does occur, the error message will be displayed in the upper left of the panel's display screen along with the error code number. The error code with error message will blink off and on.



**NOTE:** See Appendix A: Panel & PLC Error Code Tables for a complete list of all error codes.



## C-more Micro Panel Runtime Errors

The **C-more** Micro panel includes built-in diagnostics that check for proper operation of the panel when it is running a project that has been transferred to its memory. Faults detected while the panel is running will produce a “Runtime” error. These errors are displayed in a popup window in the center of the panel’s display.

### Troubleshooting a Panel Runtime Error:

Follow these steps to troubleshoot a panel runtime error.

1. Check the panel cable connections.
2. Cycle power at the panel.
3. Resend the project.
4. If the error still occurs, reset the panel back to factory default. Refer to Chapter 5 for details.



**NOTE:** User memory is cleared when factory defaults are reset. Use the **C-more** Micro programming software to read the program from the panel and save a backup copy.

## Panel Errors

If more than one panel error occurs, each error message will display sequentially for three seconds with a two second delay between each message.

When only one panel error is active, that message will display continuously until it is no longer active.

Micro Panel Errors		
Error Code	Error Message	Possible Solutions
R001	PC software tool Timeout	Check cables and connections. Cycle power at the panel. See Chapter 8 for Electrical Noise Problems.
R002	CRC Error occurred during project transfer from PC.	Check the area for sources of noise: electrical motors, transformers, etc. Check for proper grounding Resend the project.
R003	Project Check Sum Error. Resend Project file to Panel.	Cycle power. Resend the project.
R004	Protocol Module Check Sum Error. Resend Project File to Panel	
R005	Panel Check Sum Error. Panel Info (Not Project) will be initialized.	From the Setup Menu screen, reset panel options.
R006	SW Ver. Mismatch. Use software Ver.xx.xx.	Update to current version programming software and panel firmware.
R102	External power fail. Reconnect USB cable.	The panel was powered in High Power mode (24 VDC power supply.) The 24 VDC power has been lost and the panel is now running on USB bus power. Either re-establish the 24 VDC power connection or remove all power connections and then reconnect the USB cable for the panel to run in Low-Power mode via the USB connection. Low power mode is not available on EA3 series panels.

## Reset to Factory Default

Factory default values can be reset by pressing F2 and F4 while cycling power to the panel.

The Factory Default values are:

- Brightness value of 10
- The internal audible beeper enabled
- Forced touch panel calibration
- User program cleared from memory
- Hourglass icon delay of 350 ms.
- Horizontal orientation



---

**NOTE:** User memory is cleared when factory defaults are reset. Use the **C-more** Micro programming software to read the program from the panel and save a backup copy.

---

## Electrical Noise Problems

Most noise problems result from improper grounding of the system. A good earth ground can be the single most effective way to correct noise problems. If a ground is not available, install a ground rod as close to the system as possible. Ensure all ground wires are single point grounds and are not daisy chained from one device to another. Ground metal enclosures around the system. A loose wire can act as a large antenna, introducing noise into the system. Therefore, tighten all connections in your system. Loose ground wires are more susceptible to noise than the other wires in your system. Review **Chapter 4: Installation & Wiring** if you have questions regarding how to ground the touch panel.

Electrical noise can enter the system through the power source for the touch panel. Installing a properly wired isolation transformer (neutral grounded) for all AC sources can help the problem, but only if wired correctly. DC sources should be well-grounded good quality supplies.

Never run communication cables or low-voltage power wiring close to high voltage wiring or pulse generating wiring that controls such devices as solenoids, servos, VFDs, etc.

Selecting a lower communication rate in Panel Manager may help the panel better handle noise.



# CHAPTER 9

## REPLACEMENT PARTS

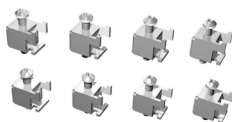
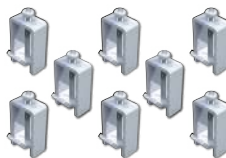
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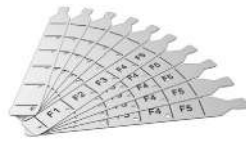
## Replacement Parts

Part Number	Description
<b>EA-MG-BZ2-BRK</b>	Replacement mounting clips for <b>C-more</b> Micro EA3-T6CL (pack of 8)
<b>EA3-BRK</b>	Replacement mounting clips for <b>C-more</b> Micro EA3-T8CL and EA3-T10CL (pack of 8)
<b>EA-MG-DC-CON</b>	Replacement DC power connector (pack of 5)
<b>EA-MG-S3ML-GSK</b>	Replacement gasket for EA3-S3ML-RN, EA3-S3ML-R and EA3-S3ML
<b>EA-4-GSK</b>	Replacement gasket for EA3-T4CL
<b>EA-MG6-GSK</b>	Replacement gasket for EA3-T6CL
<b>EA3-8-GSK</b>	Replacement gasket for EA3-T8CL
<b>EA3-10-GSK</b>	Replacement gasket for EA3-T10CL
<b>EA-MG-S3ML-FKL</b>	Replacement function key label insert for EA3-S3ML-RN, EA3-S3ML-R and EA3-S3ML (pk of 10; 5 blank, 5 F1-F5)
<b>EA-MG-6-FKL</b>	Replacement function key label insert for EA3-T6CL (pk of 5; 3 blank, 1 F1-F5 for Landscape, 1 F1-F5 for Portrait)
<b>EA3-MG-8-FKL</b>	Replacement function key label insert for EA3-T8CL (pk of 5; 3 blank, 1 F1-F7 for Landscape, 1 F1-F7 for Portrait)
<b>EA3-MG-10-FKL</b>	Replacement function key label insert for EA3-T10CL (pk of 5; 3 blank, 1 F1-F7 for Landscape, 1 F1-F7 for Portrait)
<b>EA-MG-COV-CL</b>	Accessory Screen Protector for 3-inch panels, Non-Glare (pack of 3)
<b>EA-4-COV3</b>	Accessory Screen Protector for 4-inch panels, Non-Glare (pack of 3)
<b>EA-6-COV2</b>	Accessory Screen Protector for 6-inch panels, Non-Glare (pack of 3)
<b>EA-8-COV2</b>	Accessory Screen Protector for 8-inch panels, Non-Glare (pack of 3)
<b>EA-10-COV2</b>	Accessory Screen Protector for 10-inch panels, Non-Glare (pack of 3)

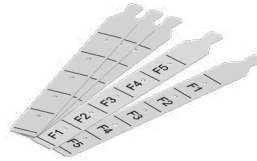
**EA-MG-S3ML-BRK****EA-MG-BZ2-BRK****EA3-BRK**
**EA-MG6-GSK**  
**EA-4-GSK**  
**EA3-8-GSK**  
**EA3-10-GSK**

**EA-MG-COV-CL**  
**EA-4-COV3**  
**EA-6-COV2**  
**EA-8-COV2**  
**EA-10-COV2**

## Replacement Parts (cont'd)



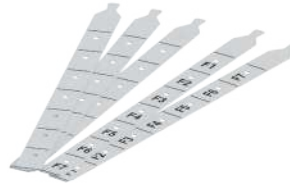
**EA-MG-S3ML-FKL**



**EA-MG-6-FKL**



**EA3-MG-8-FKL**



**EA3-MG-10-FKL**

## Customizing the Function Keys Insert Label

Step 1 - Remove gasket



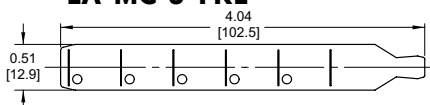
Step 2 - Remove existing function key label insert using a small tool such as jeweler's screw driver.



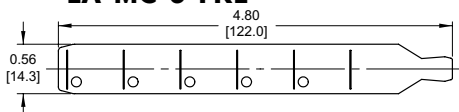
Step 3 - Install the new insert into the slot in the side of the panel and lock tab into place. Reinstall the gasket.



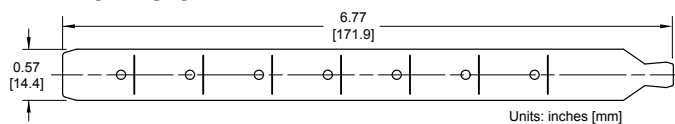
### EA-MG-3-FKL



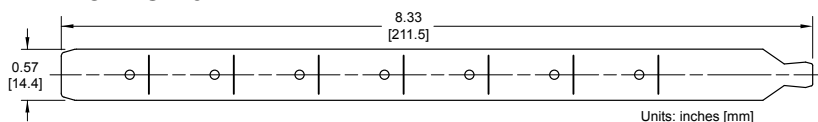
### EA-MG-6-FKL



### EA3-MG-8-FKL



### EA3-MG-10-FKL





# PANEL & PLC ERROR CODE TABLES

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# APPENDIX A

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## Introduction

**A**

The **C-more®** Micro panels are capable of communicating over RS232, RS422 and RS485 serial networks. They communicate with Productivity Series PAC's, Do-more / BRX PLC's, CLICK PLC's, all controllers in the **Direct** LOGIC family of PLCs utilizing various protocols, and certain 3rd party PLCs. For a complete list of the supported PLCs and protocols, see the PLC Drivers table in **Chapter 6: PLC Communications**.

As with any network communications, errors may occur. To simplify identification of the possible cause of the error, we have provided tables listing these errors. If a **C-more** Micro panel communications error, or other related data exchange error does occur, the error message will appear across the top of the display screen as shown in the example below. A complete table of the panel generated errors, with their respective error codes, error messages, and the possible causes of the error follows.

The **C-more** Micro panel also monitors any errors that are generated by the PLC that is connected to it. If any of the PLC generated errors are detected, they are displayed across the top of the panel's display embedded as a hexadecimal value in error code P499. An explanation of how the specific PLC error is identified in the panel error code P499 is shown preceeding the specific manufacturer's PLC error tables. How the hexadecimal error code value is interpreted is slightly different between manufacturers, so it is important to check the explanation at the beginning of each manufacturer's tables. Since these errors are generated by the PLC, refer to the PLC manufacturers documentation for further explanation.

If you have difficulty determining the cause of the error, please refer to **Chapter 8: Troubleshooting** for some troubleshooting tips or contact our technical support group at 770-844-4200.

### C-more Micro Panel Error Example



## C-more Micro Panel Error Code Table

The following table includes all of the error codes and error messages that the panel will display if the listed cause is detected. All of these errors involve problems that could result with the panel communicating with the connected PLC. Be aware that not all of the panel errors are used with each type of PLC that can be connected to the panel.

C-more Micro Panel Error Table		
Error Code	Error Message	Cause
P001	PLC Com Time Out	A timeout occurred after sending a request to the PLC.
P002	NAK Received	A negative acknowledgement (NAK) control code has been generated during a read/write request.
P003	EOT Received	An end of transmission has been sent by PLC in response to a read/write/setbit request.
P004	STX is Not Found	A Start of Text (STX) control code was not found in the data packet received from the PLC.
P005	ETX/ETB NotFound	Neither an End of Text (ETX) nor an End of Transmission Block (ETB) control code was found in the data packet received from the PLC.
P006	LRC Not Match	There was an incorrect Longitudinal Redundancy Check (LRC) control code in the communications packet received from the PLC. This is an indication that the data in the packet is corrupted.
P007	CRC Not Match	There was an incorrect Cyclic Redundancy Check (CRC) control code in the communications packet received from the PLC. This is an indication that the data in the packet is corrupted.
P008	Address NotMatch	The address value returned in the data packet from the PLC is incorrect.
P009	Re.INV.FUN.Code	The function code returned in the data packet from the PLC is incorrect.
P010	DataSizeNotMatch	There are an incorrect number of bytes found in the data packet returned from the PLC.
P011	INV.Val.FUN.Code	There is an invalid value in the function code.
P012	INVALID COMMAND	There was an invalid command sent to the PLC that wasn't recognized by the PLC.
P013	ENQ Received	If the data packet does not include a negative acknowledgement (NAK - 0x15 value) in the defined packet field, then an enquiry (ENQ) control code error will be displayed.
P014	TransID NotMatch	This error will be displayed if after checking the Transaction ID Byte in the data packet, there is no match to what was requested.
P015	Device Not Found	A PLC device designated as Device could not be found.
P016	DataByte Com.Err	The data part of the packet received contains 0 bytes of data.
P017	Out of Add.Range	The touch panel requested a file number larger than 255.
P019	Parity Error	Parity error occurred.
P020	Can'tOpenS.Port	Can't open serial port
P021	PLC# Not Match	PLC Number does not match
P022	Can't Reset DCB	Unable to reset the Data Communications Bit
P023	Not Connected	Cable not connected properly
P024	No Other Dev.	Cannot detect other devices
P025	PollingListErr	Panel not in polling list
P026	PLC Connection Time Out	PLC Connection Time Out
P027	Memory Error	Memory Type Incorrect
P028	No Response	PLC failed to Respond: %PLC Node#%??

C-more Micro Panel Error Code Table continues on the next page.

## C-more Micro Panel Error Code Table (cont'd)

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C-more Micro Panel Error Table (cont'd)		
Error Code	Error Message	Cause
P499*	ErrCode Received -> Recv.Err Code XXXX	A PLC generated error code with a hexadecimal value of XXXX has been returned from the PLC. * See the explanation for error code P499 proceeding each set of PLC error code tables.
P500	Can'tWriteS.Port	Data cannot be written to the Serial port. Data was sent to the PLC via the Serial Port. If this error shows on the Panel, it indicates a Hardware Problem.
P700	RD.Buff.MEM Full	There was an error while allocating memory for the read buffer. When this error is displayed, a memory leak may have occurred.
P701	INV.PLC Address	Request to inaccessible memory from the HMI layer to the PLC protocol layer. This error is an indication that there is a problem in the HMI layer.
P702	INV.FUN.Code	A Read/Write/SetBit request has been sent to an invalid memory area. This error is an indication that there is a problem in the HMI layer.
P703	WRT.PLC.ReadOnly	A PLC Write request was made to the PLC's Read-Only memory area. This error is an indication that there is a problem in the HMI layer or the PLC protocol layer.

## Modbus Protocols Error Code P499 Explanation

The following table lists the errors that can be generated by the Modbus protocols:

**AutomationDirect CLICK**

**AutomationDirect DirectLOGIC - Modbus (Koyo)**

**Modicon Modbus RTU**

**Entivity Modbus RTU**



**NOTE:** The following errors can be generated from the designated PLC, are monitored by the **C-more** Micro panel, and displayed on the panel's screen as a hexadecimal value in panel error code P499, if active.

PLC Error Codes Modbus Protocols		
Panel Error Code P499 Hex Value	Name	Meaning
0x0001	ILLEGAL FUNCTION	The function code received in the query is not an allowable action for the server (or slave). This may be because the function code is only applicable to newer devices and was not implemented in the unit selected. It could also indicate that the server (or slave) is in the wrong state to process a request of this type, for example because it is unconfigured and is being asked to return registered values.
0x0002	ILLEGAL DATA ADDRESS	The data address received in the query is not an allowable address for the server (or slave). More specifically, the combination of reference number and transfer length is invalid. For a controller with 100 registers, the PDU addresses the first register as 0, and the last one as 99. If a request is submitted with a starting register address of 96 and a quantity of registers of 4, then the request will successfully operate (address-wise at least) on registers 96, 97, 98, 99. If a request is submitted with a starting register of 96 and a quantity of registers of 5, then the request will fail with Exception code 0x02 "Illegal Data Address" since it attempts to operate on registers 96, 97, 98, 99 and 100, and there is no register with address 100.
0x0003	ILLEGAL DATA VALUE	A value contained in the query data field is not an allowable value for server (or slave). This indicates a fault in the structure of the remainder of a complex request, such as that the implied length is incorrect. It specifically does NOT mean that a data item submitted for storage in a register has a value outside the expectation of the application program, since the Modbus protocol is unaware of the significance of any particular value of any particular register.
0x0004	SLAVE DEVICE FAILURE	An unrecoverable error occurred while the server (or slave) was attempting to perform the requested action.

## Productivity Error Code P499 Explanation



**NOTE:** The following errors can be generated from the designated PLC, are monitored by the **C-more** Micro panel and displayed on the touch panel's screen as a hexadecimal value in panel error code PLC-499 message, if active. Please refer to the PLC manufacturer's documentation for additional information.

PLC Error Codes for Productivity	
Panel Error Code P499 Hex Value	Meaning
0x0001	The function code received in the query is not an allowable action for the server (or slave). This may be because the function code is only applicable to newer devices and was not implemented in the unit selected. It could also indicate that the server (or slave) is in the wrong state to process a request of this type, for example because it is unconfigured and is being asked to return registered values.
0x0002	Address out of range. Check to make sure that the <b>C-more</b> Micro tag and System ID match the Productivity Programming Software Tag Name and System ID. The project file in the Productivity system and the imported CSV into <b>C-more</b> Micro must be in sync with each other.
0x0003	A value contained in the query data field is not an allowable value for the server (or slave). This indicates a fault in the structure of the remainder of a complex request, such as that the implied length is incorrect. It specifically does <b>NOT</b> mean that a data item submitted for storage in a register has a value outside the expectation of the application program, since the Modbus protocol is unaware of the significance of any particular value of any particular register.
0x0004	An unrecoverable error occurred while the server (or slave) was attempting to perform the requested action.

## Do-more / BRX Error Code P499 Explanation

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**NOTE:** The following errors can be generated from the designated PLC, are monitored by the **C-more** Micro panel, and displayed on the panel's screen as a hexadecimal value in panel error code P499, if active.

PLC Errors for Do-more / BRX		
Error Code	Description	Resolution
0x01	Unknown Command	Occurs when a message has been corrupted or protocol version is mismatched. Check versions and update appropriately. If versions are correct, check cabling, routing and switches for bad packets.
0x02	Out of Sessions	Too many devices connected to the CPU. Reduce the number of devices connected.
0x03	Illegal Operation	Occurs when permission level is not sufficient for the operation performed by the panel. Increase the permission level to correct the problem.
0x04	Invalid Session	Session number does match for sending device. Re-establish connection by power cycling or sending updated project.
0x05	Out of Range	Invalid address exists. Ensure that address range is expanded and load configuration to the CPU.
0x06	Invalid Argument	Occurs when message cannot be parsed correctly. Could occur from noise or faulty wiring.
0x07	Program Update Active	Wait until program update is complete.
0x08	No Token	Occurs when client attempts to update the project without first acquiring the program update token.
0x09	Program Update Inhibited	Occurs when client attempts to update the project while ST21 is true. This allows the customer to use the program to prevent the project from being updated.
0x0A	System Configuration Update Active	Wait until System Configuration update is complete to continue communications.
0x0B	Invalid Mode	Ensure that the switch on the CPU is in Term mode.
0x0C	Mode Change Active	Occurs when a PLC mode change is attempted while a mode change is in progress. In some cases it takes several scans for a mode change.
0x0D	Mode Locked	Occurs when mode change is attempted and keyswitch is not in Term.
0x0E	Invalid Password	Enter Do-more password in Password field of <b>C-more</b> Micro Panel Manager for this device.
0x0F	Resource Locked	Occurs when trying to update a tag that is forced. Force must be removed in order to update the tag.
0x010	Doc Update Active	Occurs when someone attempts to access the documentation file while it is being written back to ROM.
0x011	Invalid Driver	Occurs when attempting to read driver data from a driver that doesn't exist.
0x012	Invalid Driver Data	Occurs when attempting to read a driver data type that isn't valid.
0x013	Shared RAM write failed	Occurs when attempting to read or write to a module's shared RAM and it fails. Usually occurs when the module has gone bad.

## DirectLOGIC Error Code P499 Explanation

The P499 error code is used to show any errors that are generated by the connected PLC. The P499 error message includes a four digit hexadecimal value displayed at the end of the message. This value can be found in the specific PLC's error tables to determine the cause of the error. The possible PLC generated error codes for the various **DirectLOGIC** communication protocols breakdown into a four digit hexadecimal value.

### DirectLOGIC PLC Error Code Displayed Example:



## DirectLOGIC – K-Sequence PLC Error Code Table

The following table lists the errors that can be generated by the **DirectLOGIC** PLC when using the K-Sequence protocol.



**NOTE:** The following errors can be generated from the designated PLC, are monitored by the **C-more** Micro panel and displayed on the touch panel's screen as a hexadecimal value in panel error code PLC-499 message, if active. Please refer to the PLC manufacturer's documentation for additional information.

PLC Error Codes for Direct Logic – K-Sequence	
Panel Error Code P499 Hex Value	Description
01F8	Error setting value.
020D	Error in key mode.
021C	Password protected.

## DirectLOGIC – DirectNET PLC Error Codes

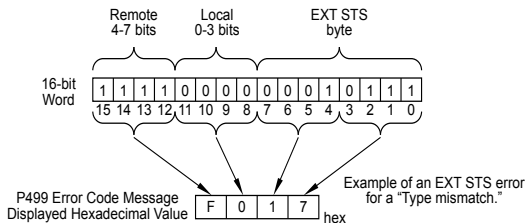
There are no PLC generated errors that occur when using the **DirectNET** protocol.

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## Allen-Bradley Error Code P499 Explanation

The P499 error code is used to show any errors that are generated by the connected PLC. The P499 error message includes a four digit hexadecimal value displayed at the end of the message. This value can be looked up in the specific PLC's error tables to determine the cause of the error. The possible PLC generated error codes for the Allen-Bradley DF1 and DH485 communication protocol is represented by a hexadecimal value as shown in the following diagram. Please note that the error code is broken down into three sections. It is possible for more than one type of PLC error to be displayed in this value.

AB DF1 Protocol Error Code P499 Breakdown



AB DF1 Protocol – Multiple Error Code Examples

	Example 1	Example 2	Example 3
Remote 4-7 bits	F x x x	1 x x x	F x x x
Local 0-3 bits	x 0 x x	x 1 x x	x 1 x x
EXT STS byte	x x 0 9	x x 0 0	x x 0 9
Error P499 Value Displayed	F 0 0 9	1 1 0 0	F 1 0 9

### Allen-Bradley PLC Error Code Displayed Example:

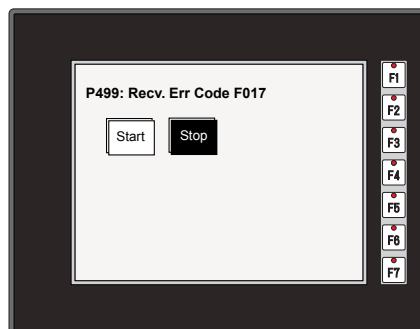
**Error Recieved = P499: Recv. Err Code 3200**

Remote = 0x3000 = Remote node host is missing, disconnected or shut down.

Local - 0x0200 = Cannot Guarantee Delivery; Link Layer. The remote node specified does not ACK Command

EXT STS = 0000 = None

Remote 4-7 bits	3 x x x
Local 0-3 bits	x 2 x x
EXT STS byte	x x 0 0
Error P499 Value Displayed	3 2 0 0





## Allen-Bradley DF1 Protocol – PLC Error Code Tables

The following PLC error tables cover possible errors that are detected by the panel from Allen-Bradley PLCs using the DF1 protocol. This includes full and half duplex communications for the MicroLogix 1000, 1100, 1200, 1400 & 1500, SLC 5/03, /04, /05, ControlLogix, CompactLogix and FlexLogix, and full duplex communications for the PLC5.



**NOTE:** The following errors can be generated from the designated PLC, are monitored by the **C-more** Micro panel and displayed on the touch panel's screen as a hexadecimal value in panel error code PLC-499 message, if active. Please refer to the PLC manufacturer's documentation for additional information.

PLC Errors for Allen-Bradley DF1 Protocol, Remote STS Errors (4-7 bits)	
Panel Error Code P499 Hex Value	Description
0x0	Success; no error.
0x10	Illegal command or format.
0x20	Host has a problem and will not communicate.
0x30	Remote node host is missing, disconnected, or shut down.
0x40	Host could not complete function due to hardware fault.
0x50	Addressing problem or memory protect rungs.
0x60	Function not allowed due to command protection selection.
0x70	Processor is in Program Mode.
0x80	Compatibility mode file missing or communication zone problem.
0x90	Remote node cannot buffer command.
0xA0	Wait ACK (1775 KA buffer full).
0xB0	Remote node problem due to download.
0xC0	Wait ACK (1775 KA buffer full).
0xD0	not used
0xE0	not used
0xF0	Error code in the EXT STS byte. See the error code table on the next page.

PLC Errors for Allen-Bradley DF1 Protocol, Local STS Errors (0-3 bits)	
Panel Error Code P499 Hex Value	Description
0x0	Success; no error.
0x1	DST node is out of buffer space.
0x2	Cannot guarantee delivery; link layer. (The remote node specified does not ACK command.)
0x3	Duplicate token holder detected.
0x4	Local port is disconnected.
0x5	Application layer timed out waiting for response.
0x6	Duplicate node detected.
0x7	Station is offline.
0x8	Hardware fault.

PLC generated error code for the Allen-Bradley DF1 Protocol continue on the next page.

## Allen-Bradley DF1 Protocol – PLC Error Code Tables (cont'd)

**A**

PLC Errors for Allen-Bradley DF1 Protocol, EXT STS Command Code for F0 Command	
Panel Error Code P499 Hex Value	Description
0x0	not used
0x1	A field has an illegal value.
0x2	Fewer levels specified in address than minimum for any address.
0x3	More levels specified in address than system supports.
0x4	Symbol not found.
0x5	Symbol is of improper format.
0x6	Address does not point to something usable.
0x7	File is wrong size.
0x8	Cannot complete request; situation has changed since start of the command.
0x9	Data or file size is too large.
0xA	Transaction size plus word address is too large.
0xB	Access denied; improper privilege.
0xC	Condition cannot be generated; resource is not available.
0xD	Condition already exists; resource is readily available.
0xE	Command cannot be executed.
0xF	Histogram overflow.
0x10	No access.
0x11	Illegal data type.
0x12	Invalid parameter or invalid data.
0x13	Address reference exists to deleted area.
0x14	Command execution failure for unknown reason; possible PLC 3 histogram overflow.
0x15	Data conversion error.
0x16	Scanner not able to communicate with 1771 rack adapter.
0x17	Type mismatch.
0x18	1771 module response was not valid.
0x19	Duplicated label.
0x22	Remote rack fault.
0x23	Timeout.
0x24	Unknown error.
0x1A	File is open; another node owns it.
0x1B	Another node is the program owner.
0x1C	Reserved
0x1D	Reserved
0x1E	Data table element protection violation.
0x1F	Temporary internal problem.

## Allen-Bradley DH485 Protocol – PLC Error Code Tables

The following PLC error code tables cover possible errors that are detected by the panel from Allen-Bradley PLCs using the DH485 protocol. This includes all MicroLogix and SLC500 PLCs, and any communication connection using an Allen-Bradley AIC device using the DH485 protocol.



**NOTE:** The following errors can be generated from the designated PLC, are monitored by the **C-more** Micro panel and displayed on the touch panel's screen as a hexadecimal value in panel error code PLC-499 message, if active. Please refer to the PLC manufacturer's documentation for additional information.

### PLC Errors for Allen-Bradley DH485 Protocol, Remote STS Errors (4-7 bits)

Panel Error Code P499 Hex Value	Description
0x0	Success; no error.
0x10	Illegal command or format.
0x20	Host has a problem and will not communicate.
0x30	Remote node host is missing, disconnected, or shut down.
0x40	Host could not complete function due to hardware fault.
0x50	Addressing problem or memory protect rungs.
0x60	Function not allowed due to command protection selection.
0x70	Processor is in Program Mode.
0x80	Compatibility mode file missing or communication zone problem.
0x90	Remote node cannot buffer command.
0xA0	Wait ACK (1775 KA buffer full).
0xB0	Remote node problem due to download.
0xC0	Wait ACK (1775 KA buffer full).
0xD0	not used
0xE0	not used
0xF0	Error code in the EXT STS byte. See the error code table on the next page.

### PLC Errors for Allen-Bradley DH485 Protocol, Local STS Errors (0-3 bits)

Panel Error Code P499 Hex Value	Description
0x0	Success; no error.
0x1	DST node is out of buffer space.
0x2	Cannot guarantee delivery; link layer. (The remote node specified does not ACK command.)
0x3	Duplicate token holder detected.
0x4	Local port is disconnected.
0x5	Application layer timed out waiting for response.
0x6	Duplicate node detected.
0x7	Station is offline.
0x8	Hardware fault.

PLC generated error codes for the Allen-Bradley DH485 protocol continue on the next page.

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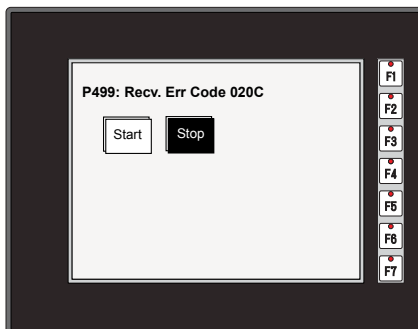
## Allen-Bradley DH485 Protocol – PLC Error Code Tables (cont'd)

PLC Errors for Allen-Bradley DH485 Protocol, EXT STS Command Code for F0 Command	
Panel Error Code P499 Hex Value	Description
0x7	Insufficient memory module size (0000h is returned).
0xB	Access denied; privilege violation.
0xC	Resource not available or cannot do.
0xE	CMD cannot be executed.
0x12	Invalid parameter.
0x14	Failure during processing.
0x19	Duplicate label.
0x1A	File open by another node + owner's local node address, 1 byte.
0x1B	Program owned by another node + program owner's local node address, 1 byte.

## GE Error Code P499 Explanation

The P499 error code is used to show any errors that are generated by the connected PLC. The P499 error message includes a four digit hexadecimal value displayed at the end of the message. This value can be looked up in the specific PLC's error tables to determine the cause of the error. The possible PLC generated error codes for the GE 90-30, 90-70, Micro 90 and VersaMax Micro SNPX communication protocols breakdown into a four digit hexadecimal value.

### GE Error Code P499 Message Example:



## GE SNPX Protocol – PLC Error Code Tables

The following table lists the errors that can be generated by the GE 90-30, 90-70 and VersaMax PLC when using the SNPX protocol.



**NOTE:** The following errors can be generated from the designated PLC, are monitored by the **C-more** Micro panel and displayed on the touch panel's screen as a hexadecimal value in panel error code PLC-499 message, if active. Please refer to the PLC manufacturer's documentation for additional information.

PLC Errors for GE SNPX Protocol (Major)	
Panel Error Code P499 Hex Value	Description
No error	Successful completion. (This is the expected completion value in the COMMREQ Status Word.)
0x0002	Insufficient Privilege. For Series 90-70 PLC, the minor error code contains the privilege level required for the service request.
0x0004	Protocol Sequence Error. The CPU has received a message that is out of order.
0x0005	Service Request Error, the minor error code contains the specific error code.
0x0006	Illegal Mailbox Type. Service request mailbox type is either undefined or unexpected.
0x0007	The PLC CPU's Service Request Queue is full. The master should retry later. It is recommended that the master wait a minimum of 10 msec before sending another service request.
0x000A	SNP DOS Driver Error. The minor error code contains the specific error code.
0x000B	Illegal Service Request. The requested service is either not defined or not supported. (This value is returned in lieu of the actual 01h value passed in the SNP error message, to avoid confusion with the normal successful COMMREQ completion.)
0x000C	Local SNP/SNP-X Error. An error occurred within the SNP task in the CMM module in this PLC. This error may occur in either an SNP master or an SNP slave. The minor error code contains the specific error code.
0x000D	Remote SNP Error. An error occurred within the SNP slave task in the CMM module in the remote PLC. The minor error code contains the specific error code.
0x000E	Autodial Error. An error occurred while attempting to send a command string to an attached external modem. The minor error code contains the specific error code.
0x000F	SNP-X slave error. An error occurred within the SNPX task in the remote slave device. The minor error code contains the specific error code.
0x0013	Port configurator error.
0x0050	Problem with sending mail to the slave Service Request task. (Series 90-70 PLC CPUs only)
0x0051	Problem with getting mail from the slave Service Request task. (Series 90-70 PLC CPUs only)
0x0055	Slave SNP task timed out before receiving an SRP response. (Series 90-70 PLC CPUs only)
0x0056	Slave SNP task could not find the requested datagram connection. (Series 90-70 PLC CPUs only)
0x0057	Slave SNP task encountered an error in trying to write the datagram. (Series 90-70 PLC CPUs only)
0x0058	Slave SNP task encountered an error in trying to update the datagram. (Series 90-70 PLC CPUs only)

PLC generated error codes for the GE 90-30, 90-70 and VersaMax SNPX protocol continue on the next page.

## GE SNPX Protocol – PLC Error Code Tables (cont'd)

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PLC Errors for GE SNPX Protocol (Minor-Major) (cont'd)	
Panel Error Code P499 Hex Value	Description
PLC Error 0x010C	WAIT-type COMMREQ is not permitted; must use NOW AIT-type.
PLC Error 0x010E	Not used
PLC Error 0x010F	The service request code in an X-Request message is unsupported or invalid at this time. This error may occur if an SNP-X communication session has not been successfully established at the slave device.
PLC Error 0x020C	COMMREQ command is not supported.
PLC Error 0x020E	The modem command string length exceeds 250 characters.
PLC Error 0x020F	Insufficient privilege level in the slave PLC CPU for the requested SNP-X service. Password protection at PLC CPU may be preventing the requested service.
PLC Error 0x0213	Unsupported COMMREQ. These errors are only generated when there is no protocol currently being run on a port, and the port receives a COMMREQ. (The port may be disabled or an error has occurred in processing a new configuration).
PLC Error 0x030C	SNP communication is not active. Must initiate a new SNP communication by sending an Attach or Long Attach COMMREQ.
PLC Error 0x030E	COMMREQ Data Block Length is too small. Output command string data is missing or incomplete.
PLC Error 0x030F	Invalid slave memory type in X-Request message.
PLC Error 0x0313	Invalid COMMREQ length.
PLC Error 0x040C	SNP slave did not respond to Attach message from master.
PLC Error 0x040E	Serial output timeout. The CMM module was unable to transmit the modem autodial output from the serial port. (May be due to missing CTS signal when the CMM is configured to use hardware flow control.)
PLC Error 0x040F	Invalid slave memory address or range in X-Request message.
PLC Error 0x0413	Invalid COMMREQ status word location.
PLC Error 0x050C	Unable to write SNP Status Word to local PLC memory; may be due to invalid Status Word memory type or address.
PLC Error 0x050E	Response was not received from modem. Check modem and cable.
PLC Error 0x050F	Invalid data length in X-Request message. Data length must be non-zero, and may not exceed decimal 1000 bytes.
PLC Error 0x0513	Invalid COMMREQ data.
PLC Error 0x060C	Master device memory type is not valid in this PLC.
PLC Error 0x060E	Modem responded with BUSY. Modem is unable to complete the requested connection. The remote modem is already in use; retry the connection request at a later time.
PLC Error 0x060F	X-Buffer data length does not match the service request in X-Request message. The X-Buffer message length is obtained from the Next Message Length field in the X-Request message; the length of the data within the buffer message is always the message length.
PLC Error 0x070C	Master device memory address or length is zero.
PLC Error 0x070E	Modem responded with NO CARRIER. Modem is unable to complete the requested connection. Check the local and remote modems and the telephone line.
PLC Error 0x070F	Queue Full indication from Service Request Processor in slave PLC CPU. The slave is temporarily unable to complete the service request. The master should try again later. It is recommended that the master wait at least 10 msec before repeating the X-Request.

PLC generated error codes for the GE 90-30, 90-70 and VersaMax SNPX protocol continued on the next page.

## GE SNPX Protocol – PLC Error Code Tables (cont'd)

**A**

PLC Errors for GE SNPX Protocol (Minor-Major) (cont'd)	
Panel Error Code P499 Hex Value	Description
0x080C	Unable to read or write master device memory locations specified in COMMREQ. Usually caused by invalid memory address for this PLC. SNP message exchange may have taken place.
0x080E	Modem responded with NO DIALTONE. Modem is unable to complete the requested connection. Check the modem connections and the telephone line.
0x080F	Service Request Processor response exceeds 1000 bytes; the SNP-X slave device cannot return the data in an X-Response message. (This error applies to CMM module only.)
0x090C	Master device memory data length exceeds maximum data size of CMM module (2048 bytes). Must use a smaller data length. Use multiple COMMREQs if total data length exceeds this maximum value.
0x090E	Modem responded with ERROR. Modem is unable to complete the requested command. Check the modem command string and modem.
0x0A0C	Slave device memory type is missing or not valid.
0x0A0E	Modem responded with RING, indicating that the modem is being called by another modem. Modem is unable to complete the requested command. Retry the modem command at a later time.
0x0B0C	Slave device memory address is missing or zero.
0x0B0E	An unknown response was received from the modem. Modem is unable to complete the requested command. Check the modem command string and modem. The modem response is expected to be either CONNECT or OK.
0x0C0C	COMMREQ Data Block Length is too small. (When expected COMMREQ length is 6 words or less. An improper length may cause other minor error codes 6-11.)
0x0D0C	Invalid Diagnostic Status Word (DSW) starting word or length.
0x0E0C	Invalid maximum SNP message data size. Must be an even value from 42 to 2048.
0x0F0C	Invalid Privilege Level. Must be 0 through 4 or -1.
0x100C	Invalid Fault Table selector. Must be 1 for I/O Fault Table, or 2 for PLC Fault Table.
0x100F	Unexpected Service Request Processor error. (This error applies to CMM module only; the unexpected SRP error code is saved in the Diagnostic Status Words in the CMM module.)
0x110C	Invalid Fault Table starting index. Must be 1-32 for I/O Fault Table, or 1-16 for PLC.
0x120C	Invalid fault count. Must be 1-32 for I/O Fault Table, or 1-16 for PLC Fault Table.
0x130C	Invalid Set PLC Date/Time mode. Must be 1-4.
0x140C	Invalid Set PLC Date/Time date, time, or day-of-week value.
0x150C	Unable to retrieve master device PLC time/date from PLC CPU.
0x150F	Requested service is not permitted in a Broadcast request. The master must direct the X-Request message to a specific SNP-X slave device.
0x160C	Invalid slave PLC type. Must be 0 for Series 90-70, or 1 for Series 90-30 or Series 90-20.
0x170C	Invalid datagram type. Must be 01h for normal datagram, or 81h (129) for permanent datagram.
0x180C	Missing or too many datagram point formats. Must be 1-32.
0x190C	Invalid datagram point format data.

PLC generated error codes for the GE 90-30, 90-70 and VersaMax SNPX protocol continue on the next page.



## GE SNPX Protocol – PLC Error Code Tables (cont'd)

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PLC Errors for GE SNPX Protocol (Minor-Major) (cont'd)	
Panel Error Code P499 Hex Value	Description
0x1A0C	Datagram area size is too small to include data for all specified point formats.
0x1B0C	Invalid number of Control Program Names. Must be 1-8.
0x1C0C	SNP-X Request exceeds maximum data size (1000 bytes). Must use a smaller data length. Use multiple COMMREQs if necessary.
0x1D0C	Invalid SNP-X communication session type. Must be 0 for a single slave device, or 1 for multiple slave devices.
0x1E0C	Illegal destination SNP ID specified for SNP-X slave. Must be 0-7 ASCII characters, plus a terminating null character (00h). The Null SNP ID (eight bytes of 00h) may be used to specify any single device. The Broadcast SNP ID (eight bytes of FFh) may be used to specify all slave devices on the serial link.
0x1F0C	Destination SNP ID does not match SNP-X session type. The Broadcast SNP ID is not permitted in a single-slave SNP-X session. The Null SNP ID is not permitted in a multiple-slave SNP-X session.
0x200C	Inactivity timeout (T3'). The SNP slave has not received any new SNP messages within the configured T3' time interval.
0x200F	Invalid Message Type field in a received X-Request message. The message type of an X-Request message must be 58h = 'X'.
0x210C	A Parity error has occurred on an Attach, Attach Response, or Update Real-time Datagram message. Communications have not been established.
0x210F	Invalid Next Message Type or Next Message Length field in a received X Request message. If this request does not use a buffer (0-2 bytes of data), the Next Message Type must be zero. If this request will be followed with a buffer message (more than 2 byte.), the Next Message Type must be 54h = 'T', and the Next Message Length must specify the length of the X-Buffer message. Valid X-Buffer message lengths are 9-1008 bytes (data length plus 8 bytes).
0x220C	A BCC (Block Check Code) error has occurred on an Attach, Attach Response, or Update Realtime Datagram message. Communications have not been established.
0x220F	Invalid Message Type field in a received X-Buffer message. The message type of an X-Buffer message must be 54h = 'T'.
0x230C	A Framing or Overrun serial error has occurred on an Attach, Attach Response, or Update Realtime Datagram message. Communications have not been established.
0x230F	Invalid Next Message Type field in a received X-Buffer message. Since an X-Buffer message is never followed by another message, the Next Message Type must always be zero.
0x240C	An invalid SNP message type was received when an Attach, Attach Response, or Update Realtime Datagram message was required. Communications have not been established.
0x250C	An invalid next message length value was specified in an Attach, Attach Response, or Update Realtime Datagram message. Communications have not been established.
0x260C	An unexpected SNP message type was received when an Attach, Attach Response, or Update Realtime Datagram was required. Communications have not been established.
0x270C	Another Break was received while SNP slave was waiting for an Attach or Update Realtime Datagram message.
0x280C	An SNP message has been sent and retried the maximum number of times. A maximum of two retries are permitted. A retry is caused by a NAK from the remote SNP device.
0x290C	A received SNP message has been NAKed the maximum number of two times. The NAKed message may be retransmitted a maximum of two times.

PLC generated error codes for the GE 90-30, 90-70 and VersaMax SNPX protocol continue on the next page.

## GE SNPX Protocol – PLC Error Code Tables (cont'd)

**A**

PLC Errors for GE SNPX Protocol (Minor-Major) (cont'd)	
Panel Error Code P499 Hex Value	Description
0x2A0C	An unknown message was received when an acknowledge (ACK or NAK) was required.
0x2B0C	Sequence Error. An unexpected SNP message type was received.
0x2C0C	Received SNP message contains bad next message length value.
0x2D0C	Acknowledge timeout. An acknowledge (ACK or NAK) was not received within the configured T2 time interval. A slave device may generate this error if the master device has aborted after maximum response NAKs and does not NAK the next response retry.
0x2E0C	Response timeout. The SNP Master did not receive an SNP Response message within the configured T5' time interval.
0x2F0C	Buffer message timeout. An expected Text Buffer or Connection Data message was not received within the configured T5" time interval.
0x300C	Serial output timeout. The CMM module was unable to transmit a Break, an SNP message, or SNP acknowledge (ACK or NAK) from the serial port. (May be due to missing CTS signal when the CMM module is configured to use hardware flow control.)
0x310C	SNP slave did not receive a response from the Service Request Processor in the PLC CPU.
0x320C	COMMREQ timeout. The COMMREQ did not complete within the configured time interval.
0x330C	An SNP Request or Response was aborted prior to completion due to reception of a Break.
0x340C	PLC backplane communications error
0x350C	Invalid Piggyback Status data memory type or address. Communications have not been established.
0x360C	Invalid SNP Slave SNP ID. Must be a 0-7 ASCII characters, plus a terminating null character (00h). The Null SNP ID (eight bytes of 00h) may be used to specify any single slave device.
0x370C	The SNP master has received a response message containing an unexpected data length. Usually indicates a problem with the remote SNP slave device. May occur when Series 90-70 commands (Task Memory or Program Block Memory Read/Write) are issued to a Series 90-30 slave device.
0x380C	Response code in received SNP-X response message does not match expected value. (Response code must equal the request code +80h.)
0x390C	SNP-X Response message exceeds maximum data size (decimal 1000 bytes). Data in the Response is ignored.
0x400C	A parity error has occurred on an X-Attach Response message when establishing a new SNP-X communication session. Communications have not been established.
0x400D	The requested service is not supported by the SNP slave.
0x400F	Serial output timeout. The slave was unable to transmit an SNP-X message from the serial port. (May be due to missing CTS signal when the CMM module is configured to use hardware flow control.)

PLC generated error codes for the GE Fanuc 90-30, 90-70 and VersaMax SNPX protocol continue on the next page.

## GE SNPX Protocol – PLC Error Code Tables (cont'd)

A

PLC Errors for GE SNPX Protocol (Minor-Major) (cont'd)	
Panel Error Code P499 Hex Value	Description
0x410C	A framing or overrun error has occurred on an X-Attach Response message when establishing a new SNP-X communication session. Communications have not been established.
0x410D	SNP slave on CMM module requires PLC CPU privilege level 2 to operate. The SNP slave has rejected a request to change to a higher or lower privilege level.
0x410F	An SNP-X request was aborted prior to completion due to reception of a Break.
0x420C	A BCC (Block Check Code) error has occurred on an X-Attach Response message when establishing a new SNP-X communication session. Communications have not been established.
0x420D	SNP Request or Response message exceeds maximum data length of the CMM module. (Total data length for Mailbox and all following Buffer messages is 2048 bytes.) The master must use a smaller data length. Use multiple requests if total data length exceeds the maximum value.
0x420F	An X-Buffer message was received containing greater than 1000 bytes of data. The data is ignored.
0x430C	An invalid message type was received when an X-Attach Response was required when establishing a new SNP-X communication session. Communications have not been established.
0x430D	Improper Write Datagram message format. Series 90-70 slave devices use a different format for this message than Series 90-30 or Series 90-20 slave devices. The master must use the proper message format for this SNP slave device. (The SNP master in the CMM module sends this message as part of the Establish Datagram COMMREQ command. The datagram has been partially established, but is not usable; the datagram should be cancelled by using the Datagram ID returned by the COMMREQ.)
0x430F	The SNP-X slave did not receive a response from the Service Request Processor in the PLC CPU.
0x440C	An invalid next message type value was detected in an X-Attach Response message when establishing a new SNP-X communication session. Communications have not been established.
0x440D	A datagram error occurred in a Series 90-70 slave device (dual-port error).
0x440F	PLC backplane communications error.
0x450C	An invalid response code was detected in an X-Attach Response message when establishing a new SNP-X communication session. Communications have not been established.
0x460C	An expected X-Attach Response message was not received within the response timeout interval when establishing a new SNP-X communication session. The master has retried the X-Attach message twice without receiving a response. Communications have not been established.
0x500C	A parity error has occurred on an X-Attach Response message when re-establishing an existing SNP-X communication session. Communications have not been established.
0x500F	A parity error has occurred in a received X-Attach message.
0x510C	A framing or overrun error has occurred on an X-Attach Response message when re-establishing an existing SNP-X communication session. Communications have not been established.
0x510F	A framing or overrun error has occurred in a received X-Attach message.
0x520C	A BCC (Block Check Code) error has occurred on an X-Attach Response message when re-establishing an existing SNP-X communication session. Communications have not been established.
0x520F	A BCC (Block Check Code) error has occurred in a received X-Attach message.

PLC generated error codes for the GE Fanuc 90-30, 90-70 and VersaMax SNPX protocol continue on the next page.

## GE SNPX Protocol – PLC Error Code Tables (cont'd)

**A**

PLC Errors for GE SNPX Protocol (Minor-Major) (cont'd)	
Panel Error Code P499 Hex Value	Description
0x530C	An invalid message type was received when an X-Attach Response was required when re-establishing an existing SNP-X communication session. Communications have not been established.
0x530F	An invalid Message Type was received when an X-Attach message was required. (For an X-Attach message, the message type must be 58h = 'T'.)
0x540C	An invalid Next Message Type value was detected in an X-Attach Response message when re-establishing an existing SNP-X communication session. Communications have not been established.
0x540F	An invalid Next Message Type value was detected in a received X-Attach message. (For an X-Attach message, the Next Message Length must be zero.)
0x550C	An invalid response code was detected in an X-Attach Response message when re-establishing an existing SNP-X communication session. Communications have not been established.
0x550F	An invalid request code was detected in a received X-Attach message.
0x560C	An expected X-Attach Response message was not received within the response timeout interval when re-establishing an existing SNP-X communication session. The master has retried the X-Attach message twice without receiving a response. Communications have not been established.
0x600C	A parity error has occurred on an X-Response message.
0x600F	A parity error has occurred in a received X-Request message.
0x610C	A framing or overrun error has occurred on an X-Response message.
0x610F	A framing or overrun error has occurred in a received X-Request message.
0x620C	A BCC (Block Check Code) error has occurred on an X-Response message.
0x620F	A BCC (Block Check Code) error has occurred in a received X-Request message.
0x630C	An invalid message type was received when an X-Response message was required.
0x640C	An invalid next message type value was detected in an X-Response message.
0x650C	An invalid response code was detected in an X-Response message.
0x660C	An expected X-Response message was not received within the response time.
0x700C	A parity error has occurred on an Intermediate Response message.
0x700F	A parity error has occurred in a received X-Buffer message.
0x710C	A framing or overrun error has occurred on an Intermediate Response message.
0x710F	A framing or overrun error has occurred in a received X-Buffer message.
0x720C	A BCC (Block Check Code) error has occurred on an Intermediate Response message.
0x720F	A BCC (Block Check Code) error has occurred in a received X-Buffer message.
0x730C	An invalid message type was received when an Intermediate Response message was required.
0x730F	An expected X-Buffer message was not received.
0x740C	An invalid next message type value was detected in an Intermediate Response message.
0x750C	An invalid response code was detected in an Intermediate Response message.
0x760C	An expected Intermediate Response message was not received within the response timeout interval.

PLC generated error codes for the GE Fanuc 90-30, 90-70 and VersaMax SNPX protocol continue on the next page.

## GE SNPX Protocol – PLC Error Code Tables (cont'd)

A

PLC Errors for GE SNPX Protocol (Minor-Major) (cont'd)	
Panel Error Code P499 Hex Value	Description
0x8D0A	Bad DOS Version. Must have DOS 2.0, or later, to support the SNP DOS Driver.
0x8E0A	PC Serial port configured for SNP Master driver is not open; no communication can take place.
0x8F0A	Out-of-Sequence SNP message. SNP message type received was not the type expected.
0x900A	Bad SNP BCC encountered. Transmission was aborted after maximum retries due to a bad Block Check Code.
0x910A	Bad SNP communication. Transmission was aborted after maximum retries due to serial errors (that is, parity, overrun, or framing errors).
0x920A	No SNP communication. Either communication has been lost or a communication session has not been established.
0xC105	Invalid block state transition.
0xC205	The OEM key is NULL (inactive).
0xC305	Text length does not match traffic type.
0xC405	Verify with FA Card or EEPROM failed.
0xC505	No task-level Rack/Slot configuration to read or delete.
0xC605	Control Program (CP) tasks exist but requestor not logged into main CP.
0xC705	Passwords are set to inactive and cannot be enabled or disabled.
0xC805	Password(s) already enabled and can not be forced inactive.
0xC905	Login using non-zero buffer size required for block commands.
0xCA05	Device is write-protected.
0xCB05	A comm or write verify error occurred during save or restore.
0xCC05	Data stored on device has been corrupted and is no longer reliable.
0xCD05	Attempt was made to read a device but no data has been stored on it.
0xCE05	Specified device has insufficient memory to handle request.
0xCF05	Specified device is not available in the system (not present).
0xD005	One or more PLC modules configured have unsupported revision.
0xD105	Packet size or total program size does not match input.
0xD205	Invalid write mode parameter.
0xD305	User Program Module (UPM) read or write exceeded block end.
0xD405	Mismatch of configuration checksum.
0xD505	Invalid block name specified in datagram.
0xD605	Total datagram connection memory exceeded.
0xD705	Invalid datagram type specified.
0xD805	Point length not allowed.
0xD905	Transfer type invalid for this Memory Type selector.
0xDA05	Null pointer to data in Memory Type selector.
0xDB05	Invalid Memory Type selector in datagram.
0xDC05	Unable to find connection address.
0xDD05	Unable to locate given datagram connection ID.
0xDE05	Size of datagram connection invalid.
0xDF05	Invalid datagram connection address.

PLC generated error codes for the GE Fanuc 90-30, 90-70 and VersaMax SNPX protocol continue on the next page.

## GE SNPX Protocol – PLC Error Code Tables (cont'd)

**A**

PLC Errors for GE SNPX Protocol (Minor-Major) (cont'd)	
Panel Error Code P499 Hex Value	Description
0xE005	Service in process cannot login.
0xE105	No I/O configuration to read or delete.
0xE205	IOS could not delete configuration, or bad type.
0xE305	CPU revision number does not match.
0xE405	Memory Type for this selector does not exist.
0xE505	DOS file area not formatted.
0xE605	CPU model number does not match.
0xE705	Configuration is not valid.
0xE805	No user memory is available to allocate.
0xE905	Memory Type selector not valid in context.
0xEA05	Not logged in to process service request.
0xEB05	Task unable to be deleted.
0xEC05	Task unable to be created.
0xED05	VME bus error encountered.
0xEE05	Could not return block sizes.
0xEF05	Programmer is already attached.
0xF005	Request only valid in stop mode.
0xF105	Request only valid from programmer.
0xF205	Invalid program cannot log in.
0xF305	I/O configuration mismatch.
0xF405	Invalid input parameter in request.
0xF505	Invalid password.
0xF605	Invalid sweep state to set.
0xF705	Required to log in to a task for service.
0xF805	Invalid Task Name referenced.
0xF905	Task address out of range.
0xFA05	Cannot replace I/O module.
0xFB05	Cannot clear I/O configuration.
0xFC05	I/O configuration is invalid.
0xFD05	Unable to perform auto configuration.
0xFE05	No privilege for attempted operation.
0xFF05	Service Request Error has been aborted.

## Mitsubishi FX Protocol – PLC Error Codes

Only errors as listed in the **C-more** Micro Panel Error Code Table shown on page A-3 can occur when using the Mitsubishi FX protocol, there are no PLC generated errors.

## Mitsubishi Q / QnA Series – PLC Error Codes

The following table lists the errors that can be generated by the Mitsubishi Q / QnA Series PLC when using the Q / QnA protocol.



**NOTE:** The following errors can be generated from the designated PLC, are monitored by the **C-more** Micro panel and displayed on the touch panel's screen as a hexadecimal value in panel error code PLC-499 message, if active. Please refer to the PLC manufacturer's documentation for additional information.

PLC Error Codes for Mitsubishi Q / QnA and Q Series	
Panel Error Code P499 Hex Value	Description
0x4000	Serial communications checksum error. Check cable and grounding.
0x4001	Unsupported request sent to PLC.
0x4002	Unsupported request sent to PLC.
0x4003	Global request sent to PLC that cannot be executed.
0x4004	System protect switch is on and request was sent that cannot be executed. Also PLC, may still be booting up.
0x4005	Packet sent is too large according to size request in header.
0x4006	Serial communications could not be initialized.
0x4008	CPU busy or buffer full.
0x4010	Request cannot be serviced while CPU is running. CPU must be stopped.
0x4013	Request cannot be serviced while CPU is running. CPU must be stopped.
0x4021	Drive memory does not exist.
0x4022	File (ZR memory) does not exist.
0x4023	File (ZR memory) name and File (ZR memory) number do not match.
0x4024	File (ZR memory) inaccessible by user.
0x4025	File (ZR memory) is locked by another device.
0x4026	File (ZR memory) password required.
0x4027	Specified range is out of File (ZR memory) range.
0x4028	File (ZR memory) already exist.
0x4029	Specified File (ZR memory) capacity cannot be retrieved.
0x402A	Specified File (ZR memory) is abnormal.
0x402B	The requested data cannot be executed in the specified drive memory.
0x402C	The requested operation cannot be executed presently.
0x4030	The specified data type does not exist. Check the CPUs allowable data types.
0x4031	The specified address is out of range. The data type requested may need to be expanded in GX developer. The CPU may not allow this data type.
0x4032	Address qualification is incorrect.
0x4033	Cannot write to system area.
0x4034	Request cannot be executed because completion address for an instruction cannot be turned on.

PLC generated error codes for the Mitsubishi Q / QnA protocol continue on the next page.

## Mitsubishi Q / QnA Series – PLC Error Codes (cont'd)

A

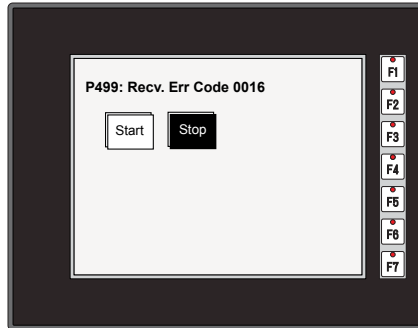
PLC Error Codes for Mitsubishi Q / QnA and Q Series	
Panel Error Code P499 Hex Value	Description
0x4040	Module doesn't support request.
0x4041	Request is out of module's range.
0x4042	Module cannot be accessed.
0x4043	Address for specified module is incorrect.
0x4044	Hardware problem exist for specified module.
0x4050	Request cannot be executed because memory card protect switch is on.
0x4051	Specified memory cannot be accessed.
0x4052	Specified memory attribute is read only and cannot be written to.
0x4053	Error occurred when writing to specified memory location.
0x4080	Request data error. Check cabling and electrical noise.
0x4082	Specified request is already being executed.
0x408B	The remote request cannot be performed.
0x40A0	A block number out of range was specified.
0x40A1	The number of blocks requested exceeds the range of the PLC.
0x40A2	A step number was specified out of range.
0x40A3	Step range limit exceeded.
0x40A4	Specified sequence step number is out of range.
0x40A5	Specified SFC device is out of range.
0x40A6	Block specification and step specification are incorrect.
0x4100	CPU module hardware fault.
0x4101	Serial communication connection incorrect.
0x4105	CPU module internal memory fault. Bad CPU.
0x4106	CPU is in initialization. Wait until CPU is booted up.
0x4107	Specified function not supported by this CPU. Check memory types for that CPU.
0x4110	Specified function not supported because CPU is in Stop. Put CPU in Run.
0x4111	System is not up yet. Wait until system is up before performing request.
0x4A01	The network number specified does not exist. Routing not supported in <b>C-more</b> .
0x4A02	Station number specified does not exist. Routing not supported in <b>C-more</b> .



## Omron Error Code P499 Explanation

The P499 error code is used to show any errors that are generated by the connected PLC. The P499 error message includes a four digit hexadecimal value displayed at the end of the message. This value can be looked up in the specific PLC's error tables to determine the cause of the error. The possible PLC generated error codes for the Omron Host Link communication protocols breakdown into a four digit hexadecimal value.

### Omron Error Code P499 Message Example:



## Omron Host Link Protocol – PLC Error Code Table

The following table lists the errors that can be generated by the Omron PLC when using the Host Link protocol.



**NOTE:** The following errors can be generated from the designated PLC, are monitored by the **C-more** Micro panel and displayed on the touch panel's screen as a hexadecimal value in panel error code PLC-499 message, if active. Please refer to the PLC manufacturer's documentation for additional information.

PLC Error Codes for Omron Host Link	
Panel Error Code P499 Hex Value	Description
0x00	Normal Completion.
0x01	Not executable in RUN mode.
0x02	Not executable in MONITOR mode.
0x03	Not executable with PROM mounted.
0x04	Address over (data overflow).
0x0B	Not executable in PROGRAM mode.
0x0C	Not executable in DEBUG mode.
0x0D	Not executable in LOCAL mode.
0x10	Parity error.
0x11	Framing error.
0x12	Overrun.
0x13	FCS error.
0x14	Format error (parameter length error).
0x15	Entry number data error (parameter error, data code error, data length error).
0x16	Instruction not found.
0x18	Frame length error.
0x19	Not executable (due to Un-executable error clear, non-registration of I/O table, etc.).
0x20	I/O table generation impossible (unrecognized remote I/O unit, channel over, duplication of optical transmitting I/O unit).
0xA0	Abort due to parity error in transmit data under process.
0xA1	Abort due to framing error in transmit data under process.
0xA2	Abort due to overrun in transmit data under process.
0xA3	Abort due to FCS error in transmit data under process.
0xA4	Abort due to format error in transmit data under process.
0xA5	Abort due to frame length error in transmit data under process.
0xA8	Abort due to entry number data error in transmit data under process.
0xB0	Un-executable due to program area capacity other than 16k bytes.

## Omron FINS Protocol – PLC Error Code Table

The following table lists the errors that can be generated by the Omron PLC when using the FINS protocol.



**NOTE:** The following errors can be generated from the designated PLC, are monitored by the **C-more** Micro panel and displayed on the touch panel's screen as a hexadecimal value in panel error code PLC-499 message, if active. Please refer to the PLC manufacturer's documentation for additional information.

PLC Error Codes for Omron FINS	
Panel Error Code P499 Hex Value	Description
0x0000	Normal Completion.
0x0001	Service Canceled.
0x0101	Local Error: Local node not in network.
0x0102	Local Error: Token Timeout.
0x0103	Local Error: Retries Failed.
0x0104	Local Error: Too many send frames.
0x0105	Local Error: Node address range error.
0x0106	Local Error: Node Address Duplication.
0x0201	Destination Node Error: Destination Node not in network.
0x0202	Destination Node Error: Unit Missing.
0x0203	Destination Node Error: Third Node missing.
0x0204	Destination Node Error: Destination Node busy.
0x0205	Destination Node Error: Response Timeout.
0x0301	Controller Error: Communications Controller Error.
0x0302	Controller Error: CPU Unit Error.
0x0303	Controller Error: Controller Error.
0x0304	Controller Error: Unit number Error.
0x0401	Service Unsupported: Undefined Command.
0x0402	Service Unsupported: Not supported by Model/Version.
0x0501	Routing Table Error: Destination address setting error.
0x0502	Routing Table Error: No routing tables.
0x0503	Routing Table Error: Routing table error.
0x0504	Routing Table Error: Too many delays.
0x1001	Command Format Error: Command too long.
0x1002	Command Format Error: Command too short.
0x1003	Command Format Error: Elements/Data don't match.
0x1004	Command Format Error: Command format error.
0x1005	Command Format Error: Header Error.
0x1101	Parameter Error: Area classification missing.
0x1102	Parameter Error: Access Size Error.
0x1103	Parameter Error: Address range error.

PLC generated error codes for the Omron FINS protocol continue on the next page.

## Omron FINS Protocol – PLC Error Code Table (cont'd)

**A**

PLC Error Codes for Omron FINS	
Panel Error Code P499 Hex Value	Description
0x1104	Parameter Error: Address range exceeded.
0x1106	Parameter Error: Program Missing.
0x1109	Parameter Error: Relational Error.
0x110A	Parameter Error: Duplicate Data Access.
0x110B	Parameter Error: Response too long.
0x110C	Parameter Error: Parameter Error.
0x2002	Read Not Possible: Protected.
0x2003	Read Not Possible: Table missing.
0x2004	Read Not Possible: Data missing.
0x2005	Read Not Possible: Program missing.
0x2006	Read Not Possible: File missing.
0x2007	Read Not Possible: Data mismatch.
0x2101	Write Not Possible: Read Only.
0x2102	Write Not Possible: Protected - cannot write data link table.
0x2103	Write Not Possible: Cannot register.
0x2105	Write Not Possible: Program missing.
0x2106	Write Not Possible: File missing.
0x2107	Write Not Possible: File name already exists.
0x2108	Write Not Possible: Cannot change.
0x2201	Not executable in current mode: Not possible during execution.
0x2202	Not executable in current mode: Not possible while running.
0x2203	Not executable in current mode: Wrong PLC mode (Program).
0x2204	Not executable in current mode: Wrong PLC mode (Debug).
0x2205	Not executable in current mode: Wrong PLC mode (Monitor).
0x2206	Not executable in current mode: Wrong PLC mode (Run).
0x2207	Not executable in current mode: Specified node not polling node.
0x2208	Not executable in current mode: Step cannot be executed.
0x2301	No such device: File device missing.
0x2302	No such device: Missing memory.
0x2303	No such device: Clock missing.
0x2401	Cannot Start/Stop: Table missing.
0x2502	Unit Error: Memory Error.
0x2503	Unit Error: I/O setting Error.
0x2504	Unit Error: Too many I/O points.
0x2505	Unit Error: CPU bus error.
0x2506	Unit Error: I/O Duplication.

PLC generated error codes for the Omron FINS protocol continue on the next page.

## Omron FINS Protocol – PLC Error Code Table (cont'd)

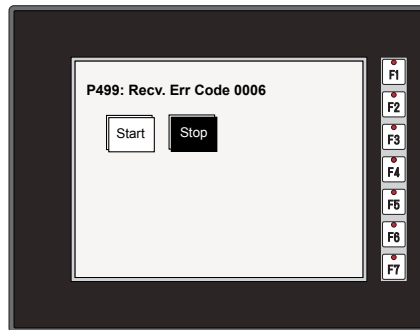
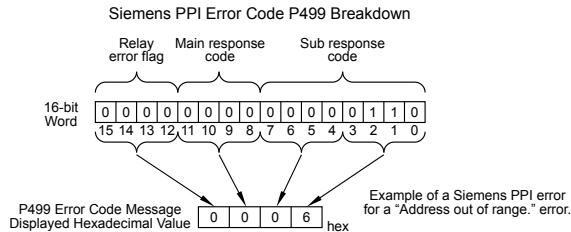
PLC Error Codes for Omron FINS	
Panel Error Code P499 Hex Value	Description
0x2507	Unit Error: I/O bus error.
0x2509	Unit Error: SYSMAC BUS/2 error.
0x250A	Unit Error: CPU Bus Unit Error.
0x250D	Unit Error: SYSMAC BUS No. duplication.
0x250F	Unit Error: Memory Error.
0x2510	Unit Error: SYSMAC BUS terminator missing.
0x2601	Command Error: No protection.
0x2602	Command Error: Incorrect password.
0x2604	Command Error: Protected.
0x2605	Command Error: Service already executing.
0x2606	Command Error: Service stopped.
0x2607	Command Error: No execution right.
0x2608	Command Error: Settings not complete.
0x2609	Command Error: Necessary items not set.
0x260A	Command Error: Number already defined.
0x260B	Command Error: Error will not clear.
0x3001	Access Right Error: No access right.
0x4001	Abort: Service aborted.

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## Siemens Error Code P499 Explanation

The P499 error code is used to show any errors that are generated by the connected PLC. The P499 error message includes a four digit hexadecimal value displayed at the end of the message. This value can be looked up in the specific PLC's error tables to determine the cause of the error. The possible PLC generated error codes for the Siemens PPI communication protocols breakdown into a four digit hexadecimal value as shown in the following diagram.



## Siemens PPI Protocol – PLC Error Code Table

PLC PDU Header Errors for S7-200 PPI	
Panel Error Code P499 Hex Value	Description
0x0001	Hardware Fault.
0x0003	Object access not allowed.
0x0004	Context not supported.
0x0005	Address out of range.
0x0006	Address out of range.
0x0007	Write Data size mismatch.
0x000A	Object does not exist.
0x8000	Function being used.
0x8001	Action is not allowed in current mode.
0x8101	Hardware fault.
0x8103	Access not allowed.
0x8104	Function not supported.
0x8105	Address invalid.
0x8106	Data Type not supported.
0x8107	Data Type is not consistent with size.
0x810A	Object does not exist.
0x8500	PDU Size is incorrect.
0x8702	Address is invalid.
0xD201	Block name syntax error.
0xD202	Error with function parameter.
0xD203	Error with block type.
0xD204	No linked block.
0xD205	Object already exists.
0xD206	Object already exists.
0xD207	Block already used in EPROM.
0xD209	Block does not exist.
0xD20E	No Block does not exist.
0xD210	Block number incorrect.

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# **C-MORE MICRO PANEL RUNTIME ERRORS**

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# **APPENDIX B**

## **In this Appendix...**

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## Introduction

The runtime errors detected by the *C-more*® Micro panel will display in a popup window in the center of the panel display. The most common cause for runtime errors is a bad serial connection during a project transfer or firmware update. To resolve the problem, try the following steps in the order shown:

1. Check that all connections are secure and cables are in good condition.
2. Cycle power to the panel.
3. Reset factory default system settings.
4. Transfer the project again.

## Panel Errors

If more than one panel error occurs, each error message will display sequentially for three seconds with a two second delay between each message.

When only one panel error is active, that message will display continuously until it is no longer active.

Micro Panel Errors		
Error Code	Error Message	Possible Solutions
R001	PC software tool Timeout	Check cables and connections. Cycle power at the panel. See Chapter 8 for Electrical Noise Problems.
R002	CRC Error occurred during project transfer from PC.	Check the area for sources of noise: electrical motors, transformers, etc. Check for proper grounding Resend the project.
R003	Project Check Sum Error. Resend Project file to Panel.	Cycle power. Resend the project.
R004	Protocol Module Check Sum Error. Resend Project File to Panel	
R005	Panel Check Sum Error. Panel Info (Not Project) will be initialized.	From the Setup Menu screen, reset panel options.
R006	SW Ver. Mismatch. Use software Ver.xx.xx.	Update to current version programming software and panel firmware.
R100	Option module detected without external power	EA-MG-SP1 or EA-MG-P1 optional power adapter module is installed on a <i>C-more</i> 3" Micro panel without a 12-24 VDC power source. Provide 12-24 VDC power to the optional module. These modules are not supported on EA3 series panels.
R101	Unsupported module detected	EA-MG-SP1 or EA-MG-P1 optional power adapter module for a <i>C-more</i> 3" Micro panel is installed on a panel that doesn't support it, including EA3 Series panels. Remove the EA-MG-SP1 or EA-MG-P1.
R102	External power fail. Reconnect USB cable.	The panel was powered in High Power mode (24 VDC power supply.) The 24 VDC power has been lost and the panel is now running on USB bus power. Either re-establish the 24 VDC power connection or remove all power connections and then reconnect the USB cable for the panel to run in Low-Power mode via the USB connection. Low power mode is not available on EA3 series panels.

## Panel Errors (cont'd)

Boot Loader Errors		
Error Code	Error Message	Possible Solutions
B001	F/W and Product Model does NOT match.	Prior to version 2.0, the firmware file extension was *.mgs. Newer versions use *.ea1. New panel models require *.ea1 firmware. If you get error B001, you have tried to upgrade firmware using a *.mgs firmware file to a panel that requires a *.ea1 file. To resolve the error, select the proper file and upgrade firmware.
B002	F/W File Check Sum Error.	A file Check Sum Error occurs either when the firmware update was interrupted by loss of power or loss of communication signal OR when the panel flash memory has exhausted it's read/write life. To resolve the error, check to make sure all cables are secure. Check the power supply. Upgrade the firmware again.
B003	CRC Error occurred during F/W transfer from PC.	A file CRC Error occurs either when the firmware update was interrupted by loss of power or loss of communication signal OR when the panel flash memory has exhausted it's read/write life. To resolve the error, check to make sure all cables are secure. Check the power supply. Upgrade the firmware again.
B004	Must Use F/W Ver.3.20 or Newer.	Must use Ver.3.20 or newer firmware for this panel (Panel Hardware Revision 1 for EA1-S3ML* and EA1-S6ML*)

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